The Defence Aviation Safety Regulation

Release 27 Feb 2025 is

Superseded

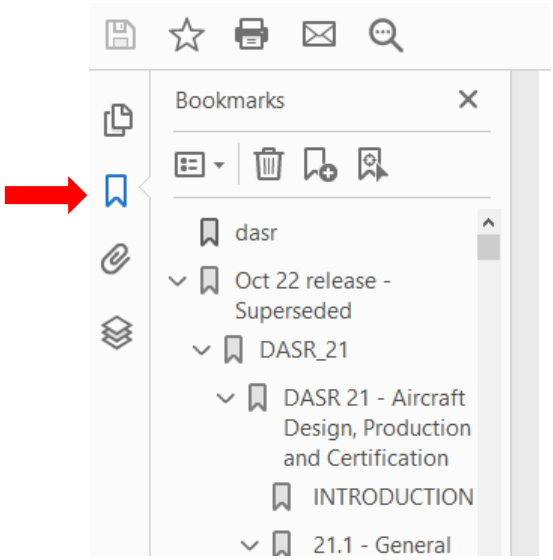
For historical reference only

The current version of DASR should be accessed here

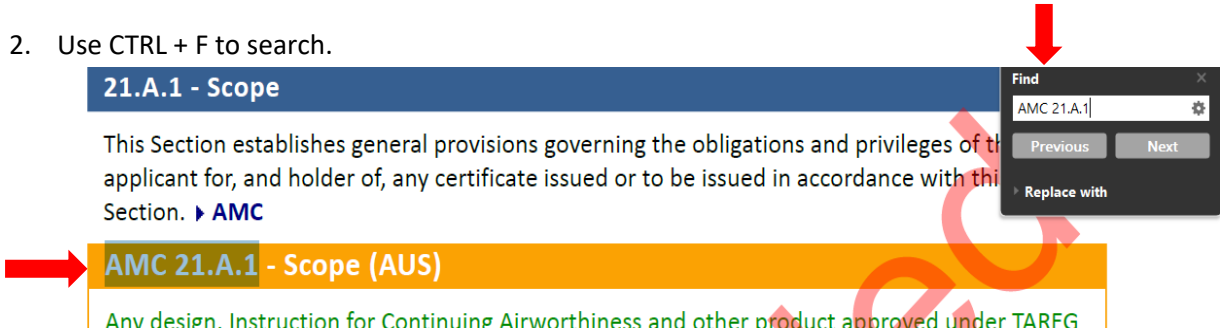
Tips

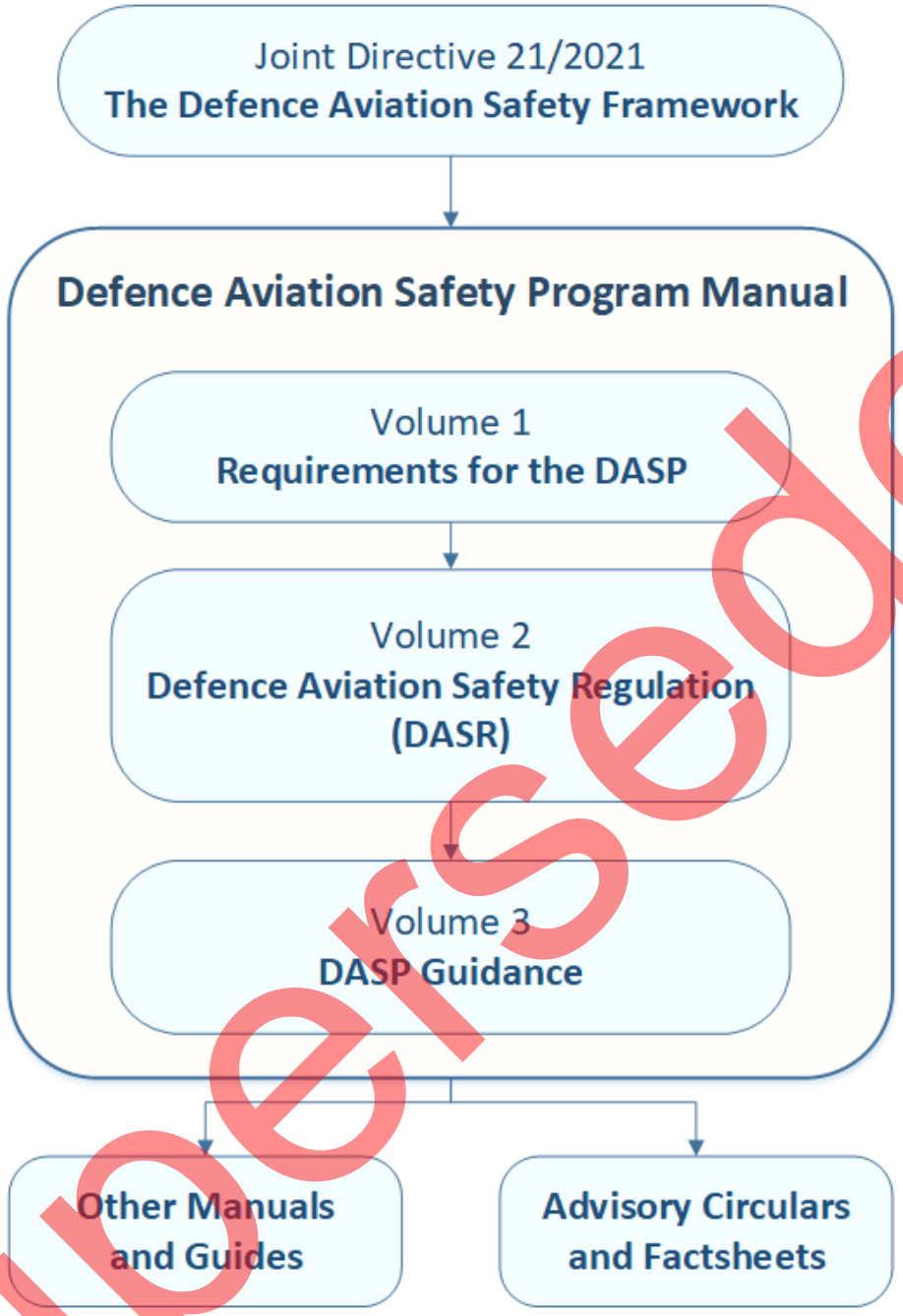
To navigate this document:

1. Use the Bookmarks tab on the left hand side.



2. Use CTRL + F to search.




Joint Directive 21/2021
The Defence Aviation Safety Framework
Defence Aviation Safety Program Manual
Volume 1
Requirements for the DASP
Volume 2
Defence Aviation Safety Regulation (DASR)
Volume 3
DASP Guidance
Other Manuals and Guides
Advisory Circulars and Factsheets

Superseded

Superseded

Volume 1 - Requirements for the DASP

The Defence Aviation Safety Program

Context

1. The Defence Aviation Safety Framework (DASF) is established by the Secretary of the Department of Defence and the Chief of the Defence Force through Joint Directive 21/2021 *The Defence Aviation Safety Framework*. The DASF defines Aviation Safety in the Defence context and sets out responsibilities and accountabilities for the management, oversight and review of Aviation Safety.

2. This structured aviation safety framework is underpinned by the:

    a. Appointment of a Defence Aviation Authority;

    b. Establishment of a Defence Aviation Safety Authority;

    c. Implementation of a Defence Aviation Safety Program;

    d. Promulgation of effective Defence Aviation Safety Regulations; and,

    e. Establishment of an independent accident and incident investigative capability.

3. The basis for the safety obligations on commanders and managers to manage aviation risks is found under the Commonwealth Work Health and Safety Act 2011. However, the Defence AA is authorised to impose a DASF across Defence to assure the Chief of Defence Force, Secretary of Defence and Government that the management of Aviation Safety is credible and defensible in the context of statutory legislation. As such, commanders and managers who are responsible for the design, construction, maintenance and operation of State aircraft and identified support systems must comply with the DASF.

Functions and responsibilities

4. The Defence Aviation Safety Program (DASP) is the ongoing fulfilment of the functions and accountabilities established by the DASF. Described at the highest level, these are:

    a. independent safety assurance applied by the Defence Aviation Safety Authority (DASA), specifically:

        (1) the prescription and interpretation of Aviation Safety management policy, inclusive of Defence Aviation Safety Regulation (DASR) and related standards

        (2) the issuance of authorisations, including permits, approvals and licenses, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR

        (3) ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA

        (4) the promotion of aviation safety through education, training, and dissemination of safety information

    b. independent accident and incident investigations performed by DASA in order to prevent recurrence and improve safety performance

Superseded

c. independent reviews of Aviation Safety coordinated by DASA on behalf of the Defence Aviation Authority.

5. The DASP also identifies continuing processes of hazard identification and safety risk management for execution by commanders and managers.

Scope of aviation activities

6. The following aviation activities are within the scope of the DASP:

a. the operation of aircraft by, or on behalf of, Defence

b. the operation of aircraft by Defence Personnel [1], Australian Defence Force (ADF) Cadets and ADF Cadet Staff in the course of their duties, including ADF Currency Flying Scheme participants

c. the design, production and maintenance of State Aircraft[2] and components thereof

d. the operation, management and certification of Defence aerodromes, including shipborne heliports

e. the provision of Air Traffic Management services and Air Navigation Services by Defence, including equipment and systems

f. the operation of foreign military aircraft within national airspace.

7. The following are outside the scope of the DASP:

a. materiel systems or support equipment, to the extent that they do not affect Aviation Safety

b. Defence personnel acting as crew, or travelling as passengers, on flights which are not exclusively for Defence use.

The DASP Manual

Purpose and applicability

8. The DASP Manual is issued by the Defence AA to establish policy and guidance for the implementation of the DASP. It is applicable to:

a. Commanders and managers responsible for aviation activities identified as being within the scope of the DASP. Aviation safety is a command responsibility and therefore commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

b. The Defence Aviation Safety Authority as the organisation responsible for the implementation of the DASP.

c. Independent reviewers, appointed by the Defence AA, to examine, and make recommendations on, the safety of Defence Aviation activities.

Superseded

Structure

9. The DASP Manual is published in three volumes:

   a. Volume 1 expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:

      (1) legal and governance arrangements

      (2) independent safety assurance

      (3) the Defence Aviation Safety Regulation

      (4) the independent investigation of accidents and incidents

      (5) independent reviews of Aviation Safety.

   b. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.

   c. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

Principles

10. The requirements detailed in this manual are based on recognition that:

   a. A credible and defensible level of military Aviation Safety performance is assured in military aviation, by the adoption of common safety rules and by measures assuring that products, persons and organisations comply with such rules.

   b. Foreign military aircraft operating in our national airspace are to be subject to appropriate oversight.

   c. The Defence AA will establish, in line with standards and recommended practices (SARPs) set by the Chicago Convention, essential requirements applicable to aeronautical products, parts and appliances, to persons and organisations involved in aircraft operations, and to persons and products involved in the training of aircrew, aerodromes, and Air Navigation Service Providers (ANSP).

   d. DASA will be empowered to develop the necessary regulations for giving effect to the requirements of this manual.

   e. The scope and requirements of the DASP are clearly defined so that persons, organisations, and products subject to the DASP can be identified without ambiguity.

   f. Aeronautical products, parts and appliances, persons and organisations involved in aircraft operations, as well as persons, products and organisations involved in their training should be certified, licensed or approved once they have been found to comply with the essential Aviation Safety requirements.

   g. Adequate flexibility is provided to effectively address special circumstances such as urgent safety measures, and compelling operational imperatives or emergencies. Provision will also be made for achieving an equivalent safety level by other means.

Superseded

Exemptions to the requirements of this manual are also able to be granted, provided they are strictly limited in scope and subject to appropriate control.

h. The effective functioning of a military Aviation Safety scheme requires strong cooperation between the Defence AA, DASA and regulated organisations, to detect unsafe conditions and take remedial measures as appropriate.

i. The promotion of a 'culture of safety' and the proper functioning of a regulatory system in the fields covered by this manual requires that incidents and occurrences be promptly reported. Such reporting is to be facilitated by the establishment of a non-punitive environment, and appropriate measures should be taken by the Defence AA, DASA and regulated organisations to provide for the protection of such information and of those who report it.

j. Recommendations from air accident/incident investigations are to be acted upon as a matter of urgency, in order to assure confidence in military Aviation Safety management.

k. The objectives of this manual may be efficiently achieved through the recognition of other aviation safety authorities by DASA.

l. In order to properly assist the Defence AA, DASA should develop its expertise in all aspects of military Aviation Safety covered by this manual, and will assist regulated organisations in its implementation. DASA should issue certification specifications and guidance material, make technical findings and issue authorisations as required. The DASA is to also monitor the application of this requirement and associated Regulations, and be given the necessary authority to carry out its tasks.

m. DASA will support the Defence AA in the field of international relations, including the harmonisation of rules, recognition of approvals and technical cooperation, and be entitled to establish the appropriate relations with the military aviation authorities of foreign countries and international organisations competent in matters covered by this manual.

Superseded

2. Legal and Governance

Legal Considerations

Context

1. Under the Commonwealth *Work Health and Safety Act 2011*, commanders and managers have an obligation to ensure that aviation safety risks are managed appropriately.

2. The Defence Aviation Safety Program (DASP), although independent, supports commanders and managers to meet their statutory safety obligations in respect of Defence Aviation through the promulgation of regulations that provide a framework for aviation safety risk management. Commanders and managers may fulfil aspects of their statutory obligations through ensuring compliance with the Defence Aviation Safety Regulation (see Volume 2 *Defence Aviation Safety Regulation*).

3. By contrast, independent safety assurance activities carried out within the DASP are not intended to support commanders and managers to fulfil their statutory safety obligations and must not be construed as doing so. No decision, or absence of a decision, by the Defence AA or DASA is to be construed as fulfilling, in whole or in part, the due diligence obligations of commanders and managers. Examples of activities that are separate from the due diligence obligations include:

   a. the review by DASA of evidence demonstrating compliance with DASR

   b. a decision by DASA to issue, amend, suspend or revoke an authorisation, including any approval, permit or licence.

State Aircraft

4. Article 3(a) of the 1944 *Convention on International Civil Aviation* (Chicago Convention) states that the Convention itself shall be applicable only to civil aircraft, and shall not be applicable to state aircraft. Article 3(b) defines state aircraft as being aircraft used in military, customs and police services.

5. In the Australian context, the *Civil Aviation Act 1988 (Cth)* and *Air Navigation Act 1920 (Cth)* alter the state aircraft definition as follows:

   a. aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and

   b. aircraft used in the military, customs or police services of a foreign country.

6. Therefore for the purposes of this manual, state aircraft are defined as:

   Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country.

   Note: 'Aircraft' includes both crewed and uncrewed aircraft.

Australia's Aviation State Safety Programme

Superseded

7. Australia maintains an aviation State Safety Programme (SSP) in accordance with its obligations under the Chicago Convention. The Australian Aviation SSP describes, inter alia, how the various Australian Government agencies, including Defence, work together to achieve the Aviation Safety outcomes required by the International Civil Aviation Organisation (ICAO). In doing so, the Australian Aviation SSP recognises the role of the DASP in regulating Defence Aviation Safety.

8. Within Australia, the Defence Aviation Safety Authority (DASA) and the Civil Aviation Safety Authority (CASA) perform similar roles in their respective aviation sectors. Both regulatory authorities have established frameworks for the assurance and management of aviation safety, and, both are responsible for the promulgation of effective regulations to support their respective frameworks. While it is intended that the two regulators work similarly to each other, they operate under different legal authorities.

9. CASA derives its authority from the *Civil Aviation Act 1988 (Cth)* and makes the *Civil Aviation Regulations* (CARs) which are legislative instruments. DASA derives its authority from Joint Directive 21/2021, which is an exercise of the administrative power under the *Defence Act 1903 (Cth)* and DASA makes non-legislative regulations called the Defence Aviation Safety Regulations (DASRs). The DASRs are designed to recognise and support compliance with Defence's statutory safety requirements. DASRs are applied to commercial organisations who perform work on aircraft and systems within the DASP through the terms of their contracts/ agreements with Defence.

10. Defence maintains an independent aviation accident and incident investigative capability as well as a system for the collection and analysis of safety data. These functions are carried out by the Defence Flight Safety Bureau within DASA (DASA-DFSB), consistent with the principles of relevant ICAO standards and recommended practices (SARPs). In the Defence context, DASA-DFSB performs a similar function to that of the Australian Transport Safety Bureau (ATSB). The ATSB is established by the *Transport Safety Investigation Act 2003 (Cth).* The non-legislative nature of investigative powers held by DASA-DFSB means that there is often a requirement for close collaboration with ATSB and other civilian agencies.

11. Defence maintains Memoranda of Understanding (MoU) with CASA and the ATSB as follows:

    a. CASA/Defence - The MoU provides a high-level basis for cooperation on harmonisation, where practicable, of civil and military regulatory system outcomes to improve safety, efficiency, consistency and capacity. The MoU allows for the use of implementation agreements to enable seamless interfaces between the two parties and their respective regulations.

    b. Defence/ATSB - The MoU provides a framework to support cooperation between Defence and ATSB in the investigation of transport safety matters.

Governance and Oversight

12. The Defence AA must be supported in the ongoing governance and oversight of the DASP by a board comprising senior executives within and external to Defence.

13. The board, led by the Defence AA, must:

    a. oversee the performance of the DASP, inclusive of commanders and managers and the DASA

Superseded

b. set the DASP strategic direction with respect to proposed Aviation Safety assurance activities

c. review and provide direction on any significant Defence Aviation Safety related matter

d. foster ongoing cooperation and alignment of functions between Defence, CASA and ATSB

e. be cognisant of global Aviation Safety 'best practice'.

Safety Performance Assessment

14. In support of the Defence AA's obligations to report to the Secretary and CDF on Defence Aviation Safety performance, a safety assessment must be published annually by DASA. This safety assessment must contain analysis of all relevant information received through Aviation Safety reporting systems and DASA assurance activities. The analysis must be easy to understand and must indicate whether there are increased safety risks.

15. The safety assessment must:

a. assess the safety performance of the regulated community, including an analysis of related safety metrics

b. identify key Aviation Safety issues for commanders and managers

c. assess the effectiveness of DASA's performance

d. analyse safety intelligence data, identifying trends where applicable

e. identify actions and activities taken to address issues and trends of concern in the field of Aviation Safety.

Superseded

3. Independent Safety Assurance

Introduction

Definitions

1. Aviation Safety is the state in which continuing processes of hazard identification and risk management ensure that risks to the health and safety of personnel arising from aircraft operations are eliminated so far as is reasonably practicable (SFARP) and, if it is not reasonably practicable to eliminate risks, those risks are minimised SFARP.

2. Independent safety assurance refers to the Defence Aviation Authority's (Defence AA's) confidence that the Aviation Safety objective stated above is met in the conduct of Defence Aviation operations. Independent safety assurance is the product of activities that are separate from Aviation Safety risk management processes and decisions, which are the responsibility of commanders and managers. Independent safety assurance activities, or their absence, do not alter commanders' and managers' statutory obligation to ensure safety.

Purpose

3. This chapter establishes requirements and provisions for the conduct of independent safety assurance activities within the DASP.

The Defence Aviation Safety Authority

Functions of the Authority

4. The Defence Aviation Safety Authority (DASA) is responsible for conducting independent safety assurance activities within the DASP. In discharging its responsibilities, DASA must:

   a. prescribe and interpret policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards

   b. issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR

   c. conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA

   d. promote Aviation Safety through education, training, and dissemination of safety information.

5. The Director General Defence Aviation Safety Authority (DG DASA) is accountable to the Defence AA to fulfil the requirements prescribed within this chapter.

6. In conducting its functions, DASA must have regard to international best practices in military Aviation Safety, including those established by:

   a. the European Military Airworthiness Requirements (EMAR)

   b. the principles of the International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPs).

Superseded

c. the Civil Aviation Safety Regulations (CASR)

d. the European Union Regulations developed by the European Aviation Safety Authority (EASA)

Prescribe and interpret policy

7. DASA must manage the DASR on behalf of the Defence AA. In doing so, DASA must:

   a. ensure that the DASR conforms to the requirements of Chapter 4 of this Volume

   b. ensure that the Defence AA is afforded adequate oversight and control[3] of DASR amendments that may appreciably increase the compliance burden or appreciably reduce Aviation Safety.

8. DASA must issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR. Such standards must reflect the state of the art and the best practices in the fields concerned and must be updated, taking into account worldwide aviation experience in service, and scientific and technical progress.

9. DASA must issue supporting material to promote understanding of, and compliance with, the DASR. Such supporting material may include an acceptable means to comply with the DASR.

10. When requested, DASA must provide authoritative interpretation of DASR and advice regarding DASR compliance. Such interpretation and advice must not prescribe a particular course of action with respect to the management of Aviation Safety unless there is evidence that the safety level of the system may otherwise be compromised.

11. DASA must establish transparent procedures for developing and issuing Aviation Safety policy, standards and support material. Such procedures must include appropriate provisions for consultation with relevant regulated entities during the development process.

Issue authorisations

12. DASA may issue all authorisations, including permits, approvals, licences and similar artefacts, as necessary for the implementation of the DASR.

13. DASA must only issue authorisations when the applicant has shown, to DASA's satisfaction, that the applicable DASR have been met.

14. DASA must only issue authorisations:

   a. to applicants that are part of Defence; or

   b. to applicants that have a contractual relationship with Defence, or a Defence contractor, and where that contractual relationship permits enforcement of the DASR by DASA; or

   c. to applicants who are in the process of entering into such a relationship; or

   d. are employees or staff members of an entity with such a relationship; or

   e. where it is in Australia's interest to do so.

Conduct oversight and enforcement

Superseded

15. DASA must conduct inspections, monitoring and investigations as necessary to assure compliance with the DASR and the ongoing validity of authorisations it has issued.

16. DASA's oversight and enforcement policies, procedures and decisions must:

    a. promote a generative and just safety culture that supports voluntary reporting of safety issues

    b. ensure that any response to a non-compliance is effective, fair, proportional and graduated

    c. be transparent and evidence-based.

17. DASA must establish transparent procedures for making enforcement decisions. Those procedures must:

    a. ensure the hearing of the entity subject to the enforcement decision is addressed in the decision, as well as that of any other party with a direct concern

    b. provide for notification of the decision to all affected entities

    c. ensure that the decision contains reasons for the decision.

18. DASA may amend, suspend or revoke any authorisation issued by, or under privilege from, DASA when DASA identifies that:

    a. the conditions applying to its issue are no longer fulfilled; or

    b. the entity holding the authorisation fails to fulfil the obligations imposed on it by the DASR.

19. Special procedures must be established to address immediate action to be taken by DASA to react to a safety problem, and to inform the relevant interested parties of the action they are to take.

20. Where practicable, DASA must notify the Defence AA prior to any enforcement action that may appreciably impact Defence aviation capability.

21. The requirements of this Manual do not prevent DASA from immediately addressing any Aviation Safety risk or issue of which it becomes aware.

Promote Aviation Safety

22. DASA must promote Aviation Safety through education, training, and the dissemination of safety information. In performing this function, DASA must provide an ongoing education and training program to promote understanding of, and compliance with, the DASR.

23. Key objectives of Aviation Safety promotion must include:

    a. fostering the maintenance and improvement of Aviation Safety

    b. supporting the development of a generative safety culture

    c. increasing awareness of prominent safety issues

    d. supporting the implementation and maintenance of an effective Safety Management System (SMS)

Superseded

24. The delivery of education and training regarding DASR compliance for specific organisational contexts is outside of DASA's remit.

Administrative responsibilities and provisions

25. **Administration of the DASP Manual.** DASA must manage the DASP Manual on behalf of the Defence AA.

26. **DG DASA delegation.** To assist the Defence AA in fulfilling their obligations, DG DASA is delegated authority to:

    a. approve amendments to, and provide authoritative interpretation of:

        (1) DASP Manual Volume 2, inclusive of all DASR

        (2) DASP Manual Volume 3

        (3) associated standards and supporting material issued under the authority of the Defence AA

    b. issue all authorisations, including permits, approvals, licences, and similar artefacts, as necessary for implementation of the DASR

    c. amend, suspend or revoke any authorisation issued by, or under privilege from, DASA.

27. **Administration of DASA.** DG DASA must take all necessary steps, including the issue of internal administrative instructions and the publication of respective information, to ensure proper functioning of DASA in accordance with this Chapter. In doing so, DG DASA must ensure that the Defence Flight Safety Bureau (DFSB) is able to provide an effective and independent accident and incident investigative capability in accordance with Chapter 5 of this Volume.

28. **Delegation of functions and authorities.** DG DASA may delegate functions and authorities, subject to robust internal control mechanisms, to suitably qualified and experienced personnel, including:

    a. DASA staff and contractors

    b. Defence staff and contractors

    c. staff of contracted organisations.

29. Any delegation of functions and authorities per paragraph 28 above must specify appropriate limitations on any further delegation of functions and authorities by the delegate.

30. When delegating a specific certification task to an entity external to Defence, DG DASA must ensure that the entity complies with the criteria detailed in Annex A to this Chapter. In such instances the respective authorisation must be issued by DASA.

31. **Engagement with the Defence AA and environmental commanders.** DG DASA or any DASA Director, may liaise directly with the Defence AA to report matters of concern that may impact Aviation Safety.

32. DG DASA, or any DASA Director, may liaise directly with Commander Australian Fleet, Commander Aviation Command, and Air Commander Australia, and their subordinate commanders, to discuss matters of concern that may impact Aviation Safety.

Superseded

33. Access to the Defence AA and environmental commanders supports a generative safety culture by enabling the provision of accurate advice on Aviation Safety matters of concern that require expertise in specific operational or technical domains.

34. **Confidentiality.** DASA must take necessary measures to ensure appropriate confidentiality of information received. Information must be handled in accordance with the *Privacy Act 1988 (Cth)*, the *Freedom of Information Act 1982 (Cth)* and Defence policies applicable to that information. Subject to satisfying security requirements, information subpoenaed or otherwise required by a judicial process must be provided in accordance with the form of the notice issued to Defence that requires the information.

35. **Defence register.** DASA must maintain a register of Defence-registered aircraft.

36. **Recognition of other aviation authorities.** DASA may recognise the independent safety assurance applied by other civil and military aviation authorities in order to promote efficiency and interoperability. Recognition must only be permitted when it can be demonstrated that the candidate authority applies credible and defensible Aviation Safety oversight.

37. **Harmonisation.** DASA must establish arrangements with relevant Australian Government agencies in order to harmonise Aviation Safety frameworks where there is potential benefit in doing do.

Annex:

(a) Criteria for Non-Defence Entities Carrying Out Certification Tasks

Superseded

Annex A – Criteria for Non-Defence Entities Carrying Out Certification Tasks

1. The entity, its director and the staff responsible for carrying out the checks, may not become involved, either directly or as authorised representatives, in the design, manufacture, marketing or maintenance of the products, parts, appliances, constituents or systems or in their operations, service provision or use. This does not exclude the possibility of an exchange of technical information between the involved organisations and the entity carrying out the checks.

2. The entity and the staff responsible for the certification tasks must carry out their duties with the greatest possible professional integrity and the greatest possible technical competence and must be free of any pressure and incentive, in particular of a financial type, which could affect their judgment or the results of their investigations, in particular from persons or groups of persons affected by the results of the certification tasks.

3. The entity must employ staff and possess the means required to adequately perform the technical and administrative tasks linked with the certification process; it should also have access to the equipment needed for exceptional checks.

4. The staff responsible for investigation must have:

   a. sound technical and vocational training,

   b. satisfactory knowledge of the requirements of the certification tasks they carry out and adequate experience of such processes, and

   c. the ability required to draw up the declarations, records and reports to demonstrate that the investigations have been carried out.

5. The impartiality of the investigation staff must be guaranteed. Their remuneration must not depend on the number of investigations carried out or on the results of such investigations.

6. Commercial entities must take out liability insurance.

7. The staff of the entity must observe professional secrecy with regard to all information acquired in carrying out their tasks.

Superseded

4. Regulation of Aviation Safety

Introduction

Purpose

1. This Chapter establishes requirements for the management of the Defence Aviation Safety Regulation (DASR) and related standards. The requirements contained therein are applicable only to the Defence Aviation Safety Authority (DASA) as the custodians of the DASR, and are not directly applicable to commanders and managers.

Responsibilities

2. The Defence Aviation Safety Authority (DASA) must ensure that the DASR address the requirements established in this Chapter.

3. Commanders and managers responsible for aviation activities within the scope of the DASP must:

    a. ensure compliance with the applicable DASR, which are promulgated in DASP Manual Volume 2 *Defence Aviation Safety Regulation*; and

    b. take all measures necessary to support independent safety assurance activities carried out by DASA in accordance with Chapter 3.

Application of the regulations

4. Where it can be shown that an equivalent level of safety to that attained by the application of the DASR can be achieved by other means, DASA may approve such other means as compliant with the intended regulatory outcome.

5. DASA may allow a credible and defensible level of military Aviation Safety performance where an equivalent level of safety to that provided by the application of the DASR cannot be demonstrated, but can be supported by the application of sound risk management principles.

The Defence Aviation Safety Regulation

Scope

6. The DASR must be applicable to the safety management of all aviation activities within the scope of the DASP as defined in Chapter 1 of this Volume.

Objectives

7. DASA must ensure that the DASR:

    a. continues to be credible, defensible, and suitable for the Defence context

    b. supports Commanders and managers to comply with statutory safety obligations while retaining the flexibility to respond to compelling operational imperatives

    c. continues to reflect international best practices in military Aviation Safety, including by aligning, where appropriate, with:

Superseded

(1) the European Military Airworthiness Requirements (EMARs)

(2) the principles of the International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPs)

(3) the Civil Aviation Safety Regulations (CASR)

(4) the European Union regulations developed by the European Aviation Safety Authority (EASA)

d. is updated as necessary to address emerging or newly identified aviation safety hazards.

Initial and Continuing Airworthiness

8. The DASR must require that Defence registered aircraft comply with the essential requirements set out in Annex A *Essential Requirements for Initial and Continuing Airworthiness*.

9. The DASR must require that the following entities demonstrate their capability and means to discharge their responsibilities:

a. organisations responsible for the maintenance of products, parts and appliances

b. organisations responsible for the management of Continuing Airworthiness

c. organisations responsible for the design and manufacture of products, parts and appliances

d. personnel responsible for the release of a product, part or appliance after maintenance

e. maintenance training organisations.

10. Unless otherwise accepted, these capabilities and means must be recognised through the issuance of an approval. The privileges granted to the approved entity and the scope of the approval must be specified in the terms of approval.

11. The DASR must specify:

a. conditions for establishing and notifying to an applicant the type-certification basis applicable to a product

b. conditions for establishing and notifying to an applicant the detailed airworthiness specifications applicable to parts and appliances

c. conditions for establishing and notifying to an applicant the specific airworthiness specifications applicable to aircraft eligible for a restricted certificate of airworthiness

d. conditions for issuing and disseminating mandatory information in order to ensure the continuing airworthiness of products

e. conditions for issuing, maintaining, amending, suspending or revoking type-certificates, restricted type-certificates, approval of changes to type-certificates, individual certificates of airworthiness, restricted certificates of airworthiness, permits to fly and certificates for products, parts or appliances, including:

Superseded

(1) conditions on the duration of these certificates, and conditions to renew certificates when a limited duration is fixed

(2) restrictions applicable to the issue of permits to fly. These restrictions should in particular concern the following:

i. purpose of the flight

ii. airspace used for the flight

iii. operational limitations

iv. qualification of flight crew

v. carriage of persons other than flight crew

(3) aircraft eligible for restricted certificates of airworthiness, and associated restrictions

(4) the minimum syllabus of maintenance certifying staff type rating training

(5) the minimum syllabus of aircrew type rating and the qualification of associated flight simulators

(6) the master minimum equipment list (MMEL) as appropriate and additional airworthiness specifications for a given type of operation

f. conditions to issue, maintain, amend, suspend or revoke approvals for organisations engaged in the design, manufacture or maintenance of products parts and appliances

g. conditions to issue, maintain, amend, suspend or revoke approvals for maintenance training organisations

h. conditions to issue, maintain, amend, suspend or revoke approvals for members conducting aircraft maintenance or component maintenance

i. responsibilities of the holders of certificates.

Crew

12. The DASR shall require that personnel involved in the operation of Defence registered aircraft, as well as flight simulation training devices, persons and organisations involved in the training, testing, checking or medical assessment of these crew, comply with the essential requirements set out in Annex B *Essential Requirements for Operations Personnel* [4].

13. The DASR must require that:

a. A person may only act as crew if they are authorised and hold a medical certificate appropriate to the operation to be performed.

b. A person must only be authorised as crew when they comply with the essential requirements on theoretical knowledge, practical skill, language proficiency and experience.

c. Crew must only be issued a medical certificate when they comply with the essential requirements on medical fitness. This medical certificate must be issued by aviation medical examiners.

Superseded

d. The privileges granted to crew and the scope of the authorisation and medical certificate must be specified in such authorisation and certificate.

e. The capability of crew training organisations to discharge the responsibilities associated with their privileges in relation to the issuance of aircrew authorisations may be recognised by the issuance of an approval.

f. Crew training organisations may be issued an approval when they comply with the rules established to ensure compliance with the relevant essential requirements. The privileges granted by the approvals shall be specified thereon.

g. Flight simulation training devices used for the training of crew must be authorised by the appropriate authority. The authorisation must be issued when the applicant has shown that the device complies with the relevant essential requirements.

h. Persons responsible for providing flight training or flight simulation training, or for assessing crew skill must hold an authorisation. Such authorisation must be issued when it is shown that the person concerned complies with the relevant essential requirements.

14. The DASR must specify:

a. the different ratings for crew authorisations

b. the conditions for issuing, maintaining, amending, limiting, suspending or revoking authorisations, ratings for authorisations and approvals applicable to crew

c. the privileges and responsibilities of the holders of authorisations, ratings for authorisations and approvals applicable to crew, crew training staff, and flight simulation training devices.

15. When implementing the DASR for crew, DASA must take specific care that they reflect the state of the art and have considered the best practice.

Air Operations

16. The DASR must require that the operation of Defence registered aircraft complies with the essential requirements for air operations set out at Annex C *Essential Requirements for Air Operations* [5].

17. The DASR must specify:

a. conditions to operate an aircraft

b. conditions for issuing, maintaining, amending, limiting, suspending or revoking authorisations for the conduct of flight operations

c. privileges and responsibilities of the holders of authorisations

d. conditions under which operations must be prohibited, limited or subject to certain conditions in the interest of safety

e. conditions for suspending flying operations.

18. The DASR must:

Superseded

a. define different types of operations and allow for related requirements and compliance demonstrations proportionate to the complexity of operations and the risk involved

b. be based on a risk assessment and be proportional to the scale and scope of the operation

c. allow for immediate reaction to established causes of accidents and serious incidents

d. take into account the safety aspects related to Air Traffic Management and Air Navigation Services (ATM/ANS).

19. When implementing the DASR for air operations, DASA must take specific care that they reflect the state of the art and have considered the applicable best practice.

Standard Rules of the Air

20. Rules of the Air, as they apply to Defence Aviation, must be harmonised with international and domestic civil practice wherever practical, in order to enable Defence aviation interoperability with non-Defence aviation activities.

Aerodromes

21. The DASR must require that aerodromes, aerodrome equipment and the operation of aerodromes comply with the essential requirements set out at Annex D *Essential Requirements for Aerodromes* [6].

22. DASA may decide to exempt Defence aerodromes with only a few movements a year from certification requirements described at paragraph 21, 23 and 24.

23. The DASR must require that:

a. A certificate must be required in respect of each aerodrome. The certificate and certification of changes to that certificate must be issued when the applicant has shown that the aerodrome complies with the applicable aerodrome certification basis, and that the aerodrome has no feature or characteristic making it unsafe for operation. The certificate must cover the aerodrome, its operation and its safety-related equipment.

b. The certification basis for an aerodrome must consist of the following:

(1) the applicable certification specifications related to the type of aerodrome

(2) the provisions for which an equivalent level of safety, if required, has been authorised

(3) the special detailed technical specifications necessary to address unique design or operational issues outside of the scope of the applicable certification specifications.

c. Organisations responsible for the operation of aerodromes must demonstrate their capability to and means to discharge the responsibilities associated with their privileges. These capabilities must be recognised through the issuance of a certificate. The privileges grated to the certified organisation and the scope of the certificate must be specified.

Superseded

d. Aerodrome operators must establish and maintain an accident prevention and safety programme, including an occurrence reporting programme, to aid in continually improving the safety of operations.

e. Aerodrome operators must monitor activities and developments which may cause unacceptable safety risks to aviation in the aerodrome surroundings, and take mitigating measures as appropriate.

24. The DASR must specify:

a. the conditions for establishing and notifying to an applicant the certification basis, including design standards, applicable to an aerodrome

b. the conditions for establishing and notifying to an applicant the detailed specifications applicable to aerodrome equipment

c. the conditions for issuing, maintaining, amending, suspending or revoking certificates for aerodromes and certificates for aerodrome equipment, including operating limitations related to the specific design of the aerodrome

d. the conditions for operating an aerodrome in compliance with the essential requirements

e. the conditions for issuing, maintaining, amending, suspending or revoking aerodrome operator certificates

f. the responsibilities of the holders of certificates.

Air Traffic Management and Air Navigation Services

25. The DASR must require that the provision of ATM/ANS complies with the essential requirements set out at Annex E *Essential Requirements for Air Traffic Management and Air Navigation Services* .

26. The DASR must require that:

a. ATM/ANS providers must be required to hold an authorisation. The authorisation must be issued when the provider has demonstrated its capability and means of discharging the responsibilities associated with the provider's privileges. The privileges granted and the scope of the services provided must be specified in the authorisation

b. ATM/ANS providers must suspend operations where necessary in the interests of safety

c. ATM/ANS providers must react appropriately to accidents and serious incidents

d. Air Traffic Controllers hold an appropriate licence for the ATM/ANS operations to be performed and a current medical certificate

e. the capability of air traffic controller training organisations to discharge the responsibilities associated with their privileges in relation to the issuance of authorisations shall be recognised by the issuance of a certificate. The privileges granted shall be specified therein.

27. The DASR must specify:

a. conditions for the provision of ATM/ANS

Superseded

b. conditions for establishing and notifying to an applicant the detailed specifications applicable to ATM/ANS systems and components

c. conditions for issuing, maintaining, amending, suspending or revoking the authorisations required for the provision of ATM/ANS.

Uncrewed Aircraft Systems

28. The DASR must require that the design, production, maintenance and operation of uncrewed aircraft, and their engines, propellers, parts, non-installed equipment and equipment to control them remotely, as well as the personnel, including remote pilots, and organisations involved in those activities, comply with the essential requirements set out in Annex F *Essentinal Requirements for Uncrewed Aircraft Systems*[8].

29. The DASR may require an authorisation for the design, production, maintenance and operation of uncrewed aircraft, as well as for the personnel, including remote pilots, and organisations involved in those activities.

30. For instances where an authorisation is required, the DASR must require that:

a. the authorisation is issued upon application, when the applicant has demonstrated that it complies with the relevant DASR

b. the authorisation specifies the safety-related limitations, operating conditions and privileges. The authorisation may be amended to add or remove limitations, conditions and privileges

c. the authorisation may be limited, suspended or revoked when the holder no longer complies with the conditions, rules and procedures for issuing or maintaining such instrument.

31. The DASR must specify:

a. the specific rules and procedures for the operation of uncrewed aircraft as well as for the personnel, including remote pilots, and organisations involved in those operations

b. the conditions for issuing, maintaining, amending, limiting, suspending, or revoking authorisations

c. the privileges and responsibilities of the holders of certificates

d. the rules and procedures for the registration of uncrewed aircraft.

Aviation Safety Management Systems

32. DASA must require the creation and maintenance of organisational Aviation Safety Management Systems (ASMS).

33. The DASR regarding ASMS must specify:

a. when an ASMS is required within regulated organisations

b. how the required ASMS elements, namely safety policy and objectives, safety risk management, safety assurance and safety promotion, are to be applied to applicable regulated organisations.

Superseded

Occurrence Reporting

34. The DASR must require the establishment, operation and management of an Occurrence Reporting system. The Occurrence Reporting system must enable assessment of the safety implications of each occurrence, including previous similar occurrences, in order to facilitate the achievement of aviation safety assurance requirements.

35. The DASR shall specify:

    a. conditions for the collection, exchange and dissemination of information

    b. conditions for conducting ramp inspection, including systematic ones.

Non-Defence Registered Aircraft

36. The DASR must specify:

    a. obligations on the Sponsor who purchases, wet lease, dry leases, charters or authorises operation of a non-Defence registered aircraft by, or on behalf of, Defence, including:

        (1) regulatory oversight by a Defence recognised CAA/MAA

        (2) implementation of safety controls such that it is reasonably expected that Aviation Safety will not be compromised

        (3) a framework for suspension of flight

    b. the approval process for any Defence operation of a non–Defence registered aircraft to be operated under an Experimental Certificate of Airworthiness

    c. obligations on Defence personnel to comply with Defence recognised CAA or MAA relevant regulatory requirements and any further controls imposed by the relevant sponsor

    d. obligations on the Sponsor who approves foreign military aircraft to operate within Australian airspace, including a framework for suspension of flight.

Oversight and Enforcement

38. In the context of oversight and enforcement, the DASR must specify:

    a. conditions for the collection, exchange and dissemination of information

    b. conditions for conducting ramp inspections, including systematic ones.

Defence Registration

39. The DASR must specify the conditions for introducing and removing aircraft from the register.

Annex:

(a) Essential Requirements for Initial and Continuing Airworthiness

(e) Essential Requirements for Air Traffic Management and Air Natigation Services

Superseded

Annex A – Essential Requirements for Initial and Continuing Airworthiness

AIM

1. The aim of this Annex is to define joint essential military airworthiness requirements. The detailed product specification including the airworthiness certification basis, shall be established for each product with due regard to the airworthiness essential requirements.

2. These airworthiness requirements do not apply to foreign military aircraft. The safety management of these aircraft is provided through DASR Non-Defence Registered Aircraft.

REQUIREMENTS

3. **Product integrity.** Product integrity must be assured for all anticipated flight conditions and ground operations for the operational life of the aircraft. Compliance with all requirements must be shown by assessment or analysis, supported, where necessary, by tests.

   a. **Structures and materials.** The integrity of the structure must be ensured throughout, and by a defined margin beyond, the operational envelope for the aircraft, including its propulsion system, and maintained for the operational life of the aircraft.

      (1) All parts of the aircraft, the failure of which could reduce the structural integrity, must comply with the following conditions without detrimental deformation or failure. This includes all items of significant mass and their means of restraint.

         i. All combinations of load reasonably expected to occur within, and by a defined margin beyond, the weights, centre of gravity range, operational envelope and life of the aircraft must be considered. This includes loads due to gusts, manoeuvres, pressurisation, movable surfaces, control and use of armaments and propulsion systems both in flight and on the ground.

         ii. Where applicable to the product, consideration must be given to the loads and likely failures induced by emergency landings either on land or water.

         iii. Dynamic effects must be covered in the structural response to these loads.

      (2) The aircraft must be free from any aeroelastic instability and excessive vibration.

      (3) The manufacturing processes and materials used in the construction of the aircraft must result in known and reproducible structural properties. Any changes in material performance related to the operational environment must be accounted for.

      (4) The effects of cyclic loading, environmental degradation, accidental and discrete source damage must not reduce the structural integrity below an acceptable residual strength level. All necessary instructions for ensuring continued airworthiness in this regard must be promulgated.

   b. **Propulsion.** The integrity of the propulsion system, i.e. engine and, where appropriate, propeller, must be demonstrated throughout, and by a defined margin

Superseded

beyond, the operational envelope of the propulsion system and must be maintained for the operational life of the propulsion system.

(1) The propulsion system must produce, within its stated limits, the thrust or power demanded of it at all required flight conditions, taking into account environmental effects and conditions.

(2) The fabrication process and materials used in the construction of the propulsion system must result in known and reproducible structural behaviour. Any changes in material performance related to the operational environment must be accounted for.

(3) The effects of cyclic loading, environmental and operational degradation and likely subsequent part failures must not reduce the integrity of the propulsion system below acceptable levels. All necessary instructions for ensuring continued airworthiness in this regard must be promulgated.

(4) All necessary instructions, information and requirements for the safe and correct interface between the propulsion system and the aircraft must be promulgated.

c. **Systems and equipment.**

(1) The aircraft must not have design features or details that experience has shown to be hazardous.

(2) The aircraft, with those systems, equipment and appliances required for military type-certification, or by operating rules, must function as intended under any foreseeable operating conditions, throughout, and by a defined margin beyond, the operational envelope of the aircraft, taking due account of the system, equipment or appliance operating environment. Other systems, equipment and appliances not required for certification, or by operating rules, whether functioning properly or improperly, must not reduce safety and must not adversely affect the proper functioning of any other system, equipment or appliance. Systems, equipment and appliances must be operable without needing exceptional skill or strength.

(3) The aircraft systems, equipment and associated appliances, including the control station, its data links etc for the uncrewed aircraft systems, considered separately and in relation to each other, must be designed such that any catastrophic failure condition does not result from a single failure not shown to be extremely improbable. An inverse relationship must exist between the probability of a failure condition and the severity of its effect on the aircraft, crew, ground-crew, passengers (where relevant), other airspace users or other third parties. Due allowance must be made for the size and broad configuration of the aircraft (including specific military systems and operations) and that this may prevent this single failure criterion from being met for some parts and some systems on helicopters, small and single engine aeroplanes and uncrewed aircraft systems.

(4) Information needed for the safe conduct of the flight and information concerning unsafe conditions must be provided to the crew, or maintenance personnel, as appropriate, in a clear, consistent and unambiguous manner. Systems, equipment and controls, including signs and announcements must be

Superseded

designed and located to minimise errors which could contribute to the creation of hazards.

(5) Design precautions must be taken to minimise the hazards to the aircraft, crew, ground-crew, passengers (where relevant), other airspace users or other third parties from reasonably probable threats, both inside and external to the aircraft, including protecting against the possibility of a significant failure in, or disruption of, any aircraft appliance.

d. **Continuing airworthiness**

(1) Instructions for continuing airworthiness must be established to ensure that the aircraft military type certification airworthiness standard is maintained throughout the operational life of the aircraft.

(2) Means must be provided to allow inspection, adjustment, lubrication, removal or replacement of parts and appliances as necessary for continuing airworthiness.

(3) The instructions for continuing airworthiness must be in a format appropriate for the quantity of data to be provided, eg paper or electronic. The instructions must cover maintenance instructions, servicing information, trouble-shooting and inspection procedures, including necessary parts data, tools and calibration data.

(4) The instructions for continuing airworthiness must contain airworthiness limitations that set forth each mandatory replacement time, inspection interval and related inspection procedure.

4. **Airworthiness aspects of product operation**

a. The following must be shown to have been addressed to ensure a credible and defensible level of military aviation safety for those on-board or on the ground during the operation of the product:

(1) The kinds of operation for which the aircraft is approved must be established and limitations and information necessary for safe operation, including environmental limitations and performance, must be established.

(2) The aircraft must be safely controllable and maneuverable under all anticipated operating conditions and where applicable, up to the point where the in-flight emergency escape system is activated or in the case of a UAS the activation of the recovery system. Due account must be taken of pilot strength, flight deck environment, aircrew workload and other human-factor considerations and of the phase of flight and its duration.

(3) It must be possible to make smooth transition(s) from one flight phase to another without requiring exceptional piloting skill, alertness, strength or workload under any probable operating condition.

(4) The aircraft must have handling qualities that ensure the demands made on the pilot are not excessive taking into account the phase of flight and its duration.

(5) Procedures for normal operations, failure and emergency conditions must be established.

Superseded

(6) Warnings, or other deterrents intended to prevent exceeding the normal flight envelope, must be provided, as appropriate to type.

(7) The characteristics of the aircraft and its systems must allow a safe return from extremes of the flight envelope that may be encountered.

b. The operating limitations and other information necessary for safe operation must be made available to the crew members.

c. Product operations must be protected from hazards resulting from adverse external and internal conditions, including environmental conditions.

(1) In particular, account must be taken of the exposure to phenomena such as, but not limited to, adverse weather, lightning, bird strike, high frequency radiated fields, ozone, use of armaments (hot gas ingestion, debris etc.), etc, reasonably expected to occur during product operation.

(2) Where applicable, cabin compartments must provide passengers with suitable transport conditions and adequate protection from any expected hazard arising in flight operations or resulting in emergency situations, including fire, smoke, toxic gases and rapid decompression hazards. Provisions must be made to give occupants every reasonable chance of avoiding serious injury and quickly evacuating the aircraft and to protect them from the effect of the deceleration forces in the event of an emergency landing on land or water. Clear and unambiguous signs or announcements must be provided, as necessary, to instruct occupants in appropriate safe behaviour and the location and correct use of safety equipment. Required safety equipment must be readily accessible.

(3) Crew compartments must be arranged in order to facilitate flight operations, including means providing situational awareness, and management of any expected situation and emergencies. The environment of crew compartments must not jeopardise the crew's ability to perform their tasks and its design must be such as to avoid interference during operation and misuse of the controls.

5. **Organisations** (including natural persons undertaking design, manufacture or continuing airworthiness activities)

a. Organisations involved in design (including flight test), production (manufacture) or continuing airworthiness activities must satisfy the following conditions:

(1) The organisation must have all the means necessary for the scope of work. These means comprise, but are not limited to, the following: facilities, personnel, equipment, tools and material, documentation of tasks, responsibilities and procedures, access to relevant data and record-keeping.

(2) The organisation must implement and maintain a management system to ensure compliance with these essential requirements for airworthiness, and aim for continuous improvement of this system.

(3) The organisation must establish arrangements with other relevant organisations, as necessary, to ensure continuing compliance with these essential requirements for airworthiness.

Superseded

(4) The organisation must establish an occurrence reporting and/or handling system, which must be used by the management system under sub-paragraph 4.a.(ii) and the arrangements under paragraph 4.a.(iii), in order to contribute to the aim of continuous improvement of the safety of products ('continued airworthiness of the type design').

b. In the case of maintenance training organisations, the conditions under sub-paragraphs 4.a.(iii) and 4.a.(iv) do not apply.

Superseded

Annex E - Essential Requirements for Air Traffic Management and Air Navigation Services

SERVICES

Aeronautical information and data for airspace users for the purpose of air navigation

1. The data used as a source for Aeronautical Information must be of sufficient quality, complete, current and provided in a timely manner.

2. Aeronautical Information must be accurate, complete, current, unambiguous, from a legitimate source, and of adequate integrity, as well as in a format suitable for users.

3. The dissemination of such Aeronautical Information to airspace users must be timely and use sufficiently reliable and expeditious means of communication protected from intentional and unintentional interference and corruption.

Meteorological information

4. The dissemination of such aeronautical meteorological information to airspace users must be timely and use sufficiently reliable and expeditious means of communication protected from interference and corruption.

Air Traffic Services

5. The data used as a source for the provision of Air Traffic Services must be correct, complete and current.

6. The provision of Air Traffic Services must be sufficiently precise, complete, current, and unambiguous to meet the safety needs of users.

7. Automated tools providing information or advice to users must be properly designed, produced and maintained to ensure that they are fit for their intended purpose.

8. Air Traffic Control Services and related processes must provide for adequate separation between aircraft and, on the aerodrome manoeuvring area, prevent collisions between aircraft and obstructions and, where appropriate, assist in protection from other airborne hazards and must ensure prompt and timely coordination with all relevant users and adjacent volumes of airspace.

9. Communication between Air Traffic Services and aircraft and between relevant Air Traffic Services units must be timely, clear, correct and unambiguous, protected from interference and commonly understood and, if applicable, acknowledged by all actors involved.

10. Means must be in place to detect possible emergencies and, when appropriate, to initiate effective search and rescue action. Such means must, as a minimum, comprise appropriate alerting mechanisms, coordination measures and procedures, means and personnel to cover the area of responsibility efficiently.

Communication services

11. Communication services must achieve and maintain sufficient performance with regard to their availability, integrity, continuity and timeliness. They must be expeditious and protected from corruption and interference.
Navigation services

Superseded

12. Navigation services must achieve and maintain a sufficient level of performance with regard to guidance, positioning and, when provided, timing information. The performance criteria include accuracy, integrity, legitimacy of the source, availability, and continuity of the service.

Surveillance services

13. Surveillance services must determine the respective position of aircraft in the air and of other aircraft and ground vehicles on the aerodrome surface, with sufficient performance with regard to their accuracy, integrity, legitimacy of the source, continuity and probability of detection. A

Airspace management

14. The activation of specific volumes of airspace for a certain use must be monitored, coordinated and promulgated in a timely manner in order to reduce the risk of loss of separation between aircraft in all circumstances. Taking into account the organisation of military activities and related aspects, airspace management must also support the uniform application of the concept of the flexible use of airspace as described by the ICAO, in order to facilitate airspace management and Air Traffic Management.

Flight procedure design

15. Flight procedures must be properly designed, surveyed and validated before they can be deployed and used by aircraft.

SYSTEMS AND CONSTITUENTS

General

16. Air Traffic Management/Air Navigation Service (ATM/ANS) systems and ATM/ANS constituents providing related information to and from the aircraft and on the ground must be properly designed, produced, installed, maintained, protected against unauthorised interference. They must be operated to ensure that they are fit for their intended purpose. The systems and procedures must include in particular those required to support the following functions and services:

    a. airspace management

    b. Air Traffic Services, in particular flight data processing systems, surveillance data processing systems and human-machine interface systems

    c. communications including ground-to-ground/space, air-to-ground and air-to-air/space communications

    d. navigation

    e. surveillance

    f. Aeronautical Information Services

    g. Meteorological Services.

System and constituent integrity, performance and reliability

17. The integrity and safety-related performance of systems and constituents whether on aircraft, on the ground or in space, must be fit for their intended purpose. They must meet the

Superseded

required level of operational performance for all their foreseeable operating conditions and for their whole operational life. ATM/ANS systems and ATM/ANS constituents must be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to ensure the seamless operation of the air traffic management network at all times and for all phases of flight. Seamless operation can be expressed, in particular, in terms of information-sharing, including the relevant operational status information, common understanding of information, comparable processing performances and the associated procedures enabling common operational performances agreed for the whole or parts of the air traffic management network.

18. The air traffic management network, its systems and their constituents must support, on a coordinated basis, new agreed and validated concepts of operation that improve the quality, sustainability and effectiveness of air navigation services, in particular in terms of safety and capacity.

19. The air traffic management network, its systems and their constituents must support the implementation of civil/military coordination, to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of the flexible use of airspace. To achieve those objectives, the air traffic management network, its systems and their constituents must support the timely sharing of correct and consistent information covering all phases of flight, between civil and military organisations.

Design of systems and constituents

20. ATM and ANS systems and constituents considered collectively, separately and in relation to each other, must be designed:

    a. to meet applicable safety requirements in such a way that an inverse relationship exists between the probability that any failure can result in a total system failure and the severity of its effect on the safety of services

    b. taking into account limitations related to human capabilities and performance

    c. in a manner that protects them and the data they convey from harmful interactions with internal and external elements.

21. Information needed for production, installation, operation and maintenance of the systems and constituents as well as information concerning unsafe conditions must be provided to personnel in a clear, consistent and unambiguous manner.

QUALIFICATION OF AIR TRAFFIC CONTROLLERS

Theoretical knowledge

22. An air traffic controller must acquire and maintain a level of knowledge appropriate to the functions exercised and proportionate to the risks associated with the type of service.

23. Acquisition and retention of theoretical knowledge must be demonstrated by continuous assessment during training, or by appropriate examinations.

24. An appropriate level of theoretical knowledge must be maintained. Compliance must be demonstrated by regular assessments or examinations. The frequency of examinations must be proportionate to the level of risk associated with the type of service.

Superseded

Practical skill

25. An air traffic controller must acquire and maintain the practical skills appropriate to exercise his or her functions. Such skills must be proportionate to the risks associated with the type of service and must cover at least, if appropriate to the functions exercised, the following items:

    a. operational procedures

    b. task specific aspects

    c. abnormal and emergency situations

    d. human factors.

26. An air traffic controller must demonstrate the ability to perform the associated procedures and tasks with a level of competence appropriate to the functions exercised.

27. A satisfactory level of competence in practical skill must be maintained. Compliance must be verified by regular assessments. The frequency of those assessments must be proportionate to the complexity and the level of risk associated with the type of service and the tasks performed.

Synthetic training devices

28. When a synthetic training device (STD) is used for practical training on situational awareness and human factors or to demonstrate that skills are acquired or maintained, it must have a level of performance that allows adequate simulation of the working environment and operational situations appropriate to the training provided.

Training course

29. Training must be given by a training course, which may comprise theoretical and practical instruction, including training on an STD, if applicable.

30. A course must be defined and approved for each type of training.

Training Officers

31. Theoretical training must be given by appropriately qualified training officers. They must:

    a. have appropriate knowledge in the field where training is to be given

    b. have demonstrated the ability to use appropriate training techniques.

32. Training on practical skills must be given by appropriately qualified training officers, who have the following qualifications:

    a. meet the theoretical knowledge and the experience requirements appropriate to the training being given

    b. have demonstrated the ability to train and to use appropriate training techniques.

33. Training officers must be or have been entitled to act as an air traffic controller.

Assessors

Superseded

34. Persons responsible for assessing the skill of air traffic controllers must have demonstrated the ability to assess the performance of, and conduct tests and checks on air traffic controllers.

35. Assessors on practical skills must also be or have been entitled to act as an air traffic controller in those areas in which assessment is to be made.

MEDICAL FITNESS OF AN AIR TRAFFIC CONTROLLER

36. All air traffic controllers must periodically demonstrate medical fitness to satisfactorily execute their functions. Compliance must be shown by appropriate assessment taking into account the possible mental and physical degradation due to age.

37. Demonstration of medical fitness, comprising physical and mental fitness, must include the demonstrated absence of any disease or disability, which makes the person providing an air traffic control (ATC) service unable:

    a. to execute properly the tasks necessary to provide an ATC service

    b. to perform assigned duties at any time

    c. to perceive correctly his/her environment.

38. Where medical fitness cannot be fully demonstrated, mitigation measures that provide equivalent safety may be implemented.

SERVICE PROVIDERS

39. Service provision must not be undertaken unless the following conditions are met:

    a. The service provider must have directly or through agreements with third parties the means necessary for the scale and scope of the service. Those means must comprise but are not limited to the following: systems, facilities, including power supply, management structure, personnel, training and education, equipment and its maintenance, documentation of tasks, responsibilities and procedures, access to relevant data and record-keeping.

    b. The service provider must develop and keep up-to-date management and operations manuals relating to the provision of its services and operate in accordance with those manuals. Such manuals must contain all necessary instructions, information and procedures for the operations, the management system and for operations personnel to perform their duties.

    c. As appropriate for the type of activity undertaken and the size of the organisation, the service provider must implement and maintain a management system to ensure compliance with the essential requirements set out in this Annex, manage safety risks and aim for continuous improvement of this system.

    d. The service provider must use only suitably qualified and trained personnel and implement and maintain training and checking programmes for the personnel.

    e. The service provider must establish formal interfaces with all stakeholders which may influence directly the safety of their services to ensure compliance with the essential requirements set out in this Annex.

Superseded

f. The service provider must establish and implement a contingency plan covering emergency and abnormal situations that may occur in relation to its services, including in the case of events which result in significant degradation or interruption of its operations.

g. The service provider must establish an occurrence reporting system as part of the management system under point (c) in order to contribute to the aim of continuous improvement of safety.

h. The service provider must make arrangements to verify that the safety performance requirements of any system and constituent they operate are met at any time.

i. The service provider must verify that the safety performance requirements of any system and constituent they operate are met at any time.

FATIGUE MANAGEMENT

40. ATC service provision must not be undertaken unless the following conditions are met:

a. The prevention of fatigue of personnel providing an ATC service must be managed through a rostering system. Such a rostering system needs to address duty periods, duty time and adapted rest periods. Limitations established within the rostering system must take into account relevant factors contributing to fatigue such as, in particular, sleep deprivation, disruption of circadian cycles, night hours, cumulative duty time for given periods of time and also the sharing of allocated tasks between personnel.

b. The prevention of stress of personnel providing an ATC service must be managed through education and prevention programmes.

c. The ATC service provider must have in place procedures to verify that the cognitive judgement of personnel providing ATC services is not impaired or their medical fitness insufficient.

d. The ATC service provider must take into account operational and technical constraints as well as human factor principles in its planning and operations.

COMMUNICATION, NAVIGATION AND SURVEILLANCE

41. Communication, navigation and/or surveillance service provision must not be undertaken unless the service provider ensures relevant airspace users and ATS units are informed on a timely basis of the operational status (and changes thereof) of their services provided for ATS purposes.

Superseded

5. Independent Investigation Capability

Introduction

Scope

1. Joint Directive 21/2021 *The Defence Aviation Safety Framework* directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau within DASA (DASA-DFSB).

Context

2. The DASA-DFSB functions described in this chapter are consistent with the international standards outlined by ICAO in:

   a. Annex 13 to the Convention on International Civil Aviation *Aircraft Accident and Incident Investigation*

   b. Annex 19 to the Convention on International Civil Aviation *Safety Management,* including Amendment 1

   c. ICAO Document 9756 *Manual of Aircraft Accident and Incident Investigation.*

Independent Investigation Capability

Responsibilities

3. In order to discharge the DASA obligations in an effective and impartial manner, DASA-DFSB has been established as the independent Defence Aviation investigation organisation, with the necessary powers, resources, and expertise to oversee Defence Aviation investigation processes and reporting systems.

4. International convention requires the independent investigation organisation to be functionally independent of the authorities responsible for Defence Aviation regulation and, in general, any other party or entity that could conflict with, or influence, its objectivity. Accordingly:

   a. DASA-DFSB is to be functionally independent of the DASA Directorates responsible for airworthiness, certification, flight operation, maintenance, licensing, air traffic control or airport operation

   b. Director DFSB is accorded powers for autonomous action outside of both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA) that may impact aviation safety

   c. Director DFSB may liaise directly with Commander Australian Fleet, Commander Forces Command and Air Command Australia and their subordinate commanders as required to fulfil their responsibilities

   d. DASA-DFSB is to investigate all aviation accidents and selected [9] aviation safety events or issues. Director DFSB is accorded powers to approve an investigation into selected aviation safety events or issues, without an environmental commander's

Superseded

appointment, informing the Defence AA and the applicable environmental commander

e. Director DFSB is to oversee, and be the point of contact for, the Defence Aviation confidential reporting scheme

f. Director DFSB is to ensure acting arrangements are in place to meet the responsibilities laid out in this chapter when necessary

g. DCAF is, in the event of the Defence AA's absence, the appointing authority for DASA-DFSB investigations of aviation events and issues that involve more than one Service

5. This enables DASA-DFSB to be strictly objective and totally impartial, and to also be perceived to be so.

Functions of DASA-DFSB

6. An aviation investigative capability is intended to do more than the retrospective investigation of accidents and incidents. DASA-DFSB shall take a proactive approach to preventing military aerospace accidents and enhancing flight safety through a systematic approach to investigation, research, education and promotion, as detailed at paragraph 8 through to 12.

7. DASA-DFSB shall establish and maintain the Defence Aviation safety reporting framework by:

a. developing and maintaining the Defence Aviation safety reporting system, including an aviation safety accident/incident database

b. developing and maintaining appropriate documentation (policy and guidance) to define the reporting framework

c. establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety

d. defining notification requirements and mechanisms (immediate and routine) for aviation safety reports

e. defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB)

f. defining the classification system for aviation safety reporting

g. developing processes to monitor the health of the aviation safety reporting system.

8. DASA-DFSB shall establish and maintain safety data collection and processing system(s) to capture, store, aggregate and enable the analysis/exchange of safety data and safety information, including but not limited to:

a. data and information pertaining to DASA-DFSB accident and incident investigations

b. data and information related to the Defence aviation safety reporting framework

c. data and information related to DASA-DFSB data gathering and research activities.

9. DASA-DFSB shall conduct safety data analysis, safety related research and review of contemporary practices in aviation safety including, but not limited to:

Superseded

a. producing statistical reports and conducting research into specific matters of concern and contemporary best practices in aviation safety

b. administering aviation safety surveys

c. participating in the Australian State Safety Programme through the Joint Agency Aviation Safety Analysis Coordination Group

d. providing Human Factors guidance and tools.

10. DASA-DFSB shall conduct independent investigation and reporting of all accidents, selected incidents, and selected systemic safety issues including, but not limited to:

a. developing and maintaining appropriate documentation (policy and guidance) to define the conduct of independent investigations

b. establishing and maintaining a Flight Data Recorder and Cockpit Voice Recorder download and analysis capability.

11. DASA-DFSB shall foster safety awareness, knowledge and action through promotional and education programs, utilising the outcomes from safety analysis, research and investigation functions to influence organisational learning.

Conduct of Investigations

12. The following principles are to apply to the conduct of DASA-DFSB independent investigations:

a. The objective of the safety investigation is to identify and reduce safety-related risk.

b. It is not a function of the DASA-DFSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings.

c. The investigation must commence as soon as practicable to ensure all perishable information is collected and protected.

d. The size and scope of the investigation, and the resources expended, must be commensurate with the classification and scale of the event and the anticipated safety outcomes.

e. The investigation must follow a structured process to gather information, determine an event sequence, determine what active failures occurred, analyse how and why those active failures occurred, and compile findings.

f. Investigations must seek to identify the systemic factors that contributed to the event to enable appropriate and effective recommendations to be proposed to improve the safety system.

g. Safety actions and recommendations must focus on the implementation (or improvement) of controls that will eliminate or minimise safety hazards and prevent re-occurrence of the event in an enduring manner.

h. In the course of an investigation, safety actions and recommendations should also be made against evidence of sub-optimal practices, even if not contributory to the event, in order to further enhance safety programs.

Superseded

i. Safety actions and recommendations in investigations must not recommend disciplinary or administrative action against individuals.

j. Investigation reports must be communicated organisation-wide and distributed to other parties that are likely to benefit.

k. Where safety actions are deemed necessary before investigations and/or reports are complete, relevant authorities must be informed of the immediate action required so that they can decide whether such action is appropriate, and implement accordingly.

Protection of Safety Data and Safety Information

13. DASA-DFSB's Safety Data Collection and Processing System(s) (SDCPs) are to be supported by data governance arrangements to ensure that safety data, safety information and related sources are afforded appropriate protection. When an independent investigation by DASA-DFSB has been initiated, all information gathered, including interviews and ambient workplace recordings (e.g. cockpit voice recorders or recordings of air traffic controller work stations) are not subject to release without the formal approval of the Defence AA.

Additional Functions of DASA-DFSB

14. The activities entrusted to DASA-DFSB may be extended to support MAOs and broader DASA activities in so far as these activities do not affect the functional independence of DASA-DFSB.

Superseded

6. Independent Review of Aviation Safety

Introduction

Background

1. The Defence Aviation Authority (Defence AA) has, since 1991, used independent boards of review to provide assurance that a satisfactory basis for airworthiness has been established and is being maintained. The introduction of the Defence Aviation Safety Program (DASP) in 2011 resulted in a broadening of the emphasis beyond airworthiness, to include review of all aviation safety aspects.

Purpose

2. This chapter details the authority for the use of independent review boards, and their execution.

Authority for independent review boards

3. Joint Directive *21/2021 The Defence Aviation Safety Framework* provides the basis for the Defence AA to convene independent boards to review the safety of Defence Aviation activities *10*.

4. The Defence AA requires that review boards be convened to provide independent assurance that aviation safety is being effectively managed. The review board should complement the assurance activities undertaken by DASA and focus on aspects where the DASA assurance activities may provide limited confidence, particularly from a 'system of systems' perspective that examines the relationships and interaction between the separate entities that collectively ensure that aviation safety is being effectively managed. In practice review boards are convened by the DASA on behalf of the Defence AA, however board members remain accountable to the Defence AA for reviewing Defence Aviation aspects as directed, and for providing findings regarding the management of aviation safety.

Review Board Execution

Composition of independent review boards

5. Each review board must comprise at least one operational and one technical member. DASA will assign officers to each board from a panel of review board members in accordance with prescribed criteria. Officers appointed by the Defence AA to the review board panel must:

   a. be star rank officers of the permanent forces, or reserve forces on active duty

   b. possess either:

      (1) an operational background with extensive experience in Defence operation of Aviation Systems

      (2) a technical background with extensive experience in Defence technical management of Aviation Systems.

Scope of independent review boards

Superseded

6. The Defence AA may convene a board to provide an independent review of, and make recommendations in response to, the management of aviation safety for:

   a. Crewed aircraft being introduced into service [11]

   b. Certified or Specified Type A category Uncrewed Aircraft Systems (UAS) being introduced into service [12]

   c. Defence Registered Aircraft, and Certified and Specified Type A category UAS, at a periodicity[13] commensurate with the safety risk

   d. Air Navigation Services and Aerodromes, at a periodicity commensurate with the safety risk

   e. any other reason as appropriate.

7. The default periodicity review of Defence Registered Aircraft, Air Navigation Service, Aerodromes and other reasons is 'normal' periodicity [14]. The period may be increased or decreased after consideration of the following criteria:

   a. the outcomes of previous review board

   b. appreciable changes to the operations (including Statement of Operating Intent and Usage (SOIU)) or major changes to configuration since the previous review board

   c. safety events or DASA assurance evidence, with a specific focus on any trends that may indicate the existence of systemic issues

   d. the adequacy of the operations, support arrangements and safety management arrangements established to satisfy statutory safety obligations

   e. any other concerns regarding the management of aviation safety.

8. At the discretion of the Defence AA, a review board may also be convened to provide an independent review of, and make recommendations regarding, the effectiveness of aviation safety management for operation of Non-Defence Registered Aircraft (NDRA).

Conduct of independent review boards

9. As part of providing confidence that aviation safety is being effectively managed, the review board may consider any aviation safety aspect of concern. Notwithstanding this, their review should predominantly focus on operations, design, support arrangements and safety management criteria likely to pose the greatest risks, and seek a detailed explanation of any significant changes or reasons for non-compliance with safety requirements. Where a high degree of confidence exists in specific aviation safety aspects, the scope of a review board may be limited to those aspects that have been assessed as being likely to pose significant risks to aviation safety.

10. The review board must be made aware of any significant changes affecting the way Defence Aviation is undertaken. These changes, their impact and the actions taken to address any resultant risk should be detailed in submissions provided by DASA and applicable entities regulated under DASR. Regulated entities are required to support the conduct of each review board by making appropriate facilities and relevant personnel available, for both the review board and any preparatory activities undertaken by the review board members. DASA is to

Superseded

provide secretariat support for the review board system, including for each review board convened.

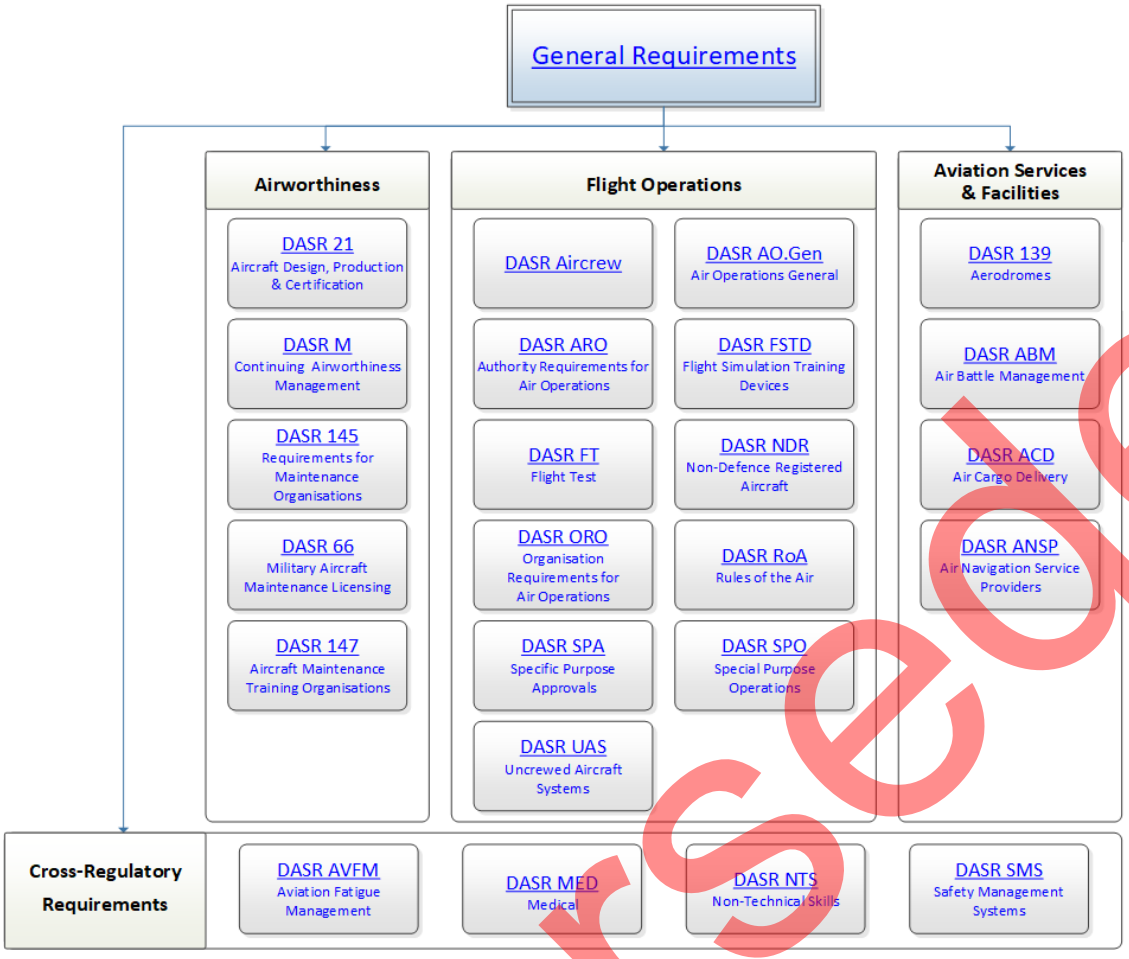
Outcomes of the independent review board

11. The review board is to provide a report detailing any concerns, including recommending corrective actions for consideration by the Defence AA, where it considers there are deficiencies with the effective management of aviation safety.

12. DASA will record any concerns, corrective actions and recommendations raised by a review board. DASA will also monitor actions taken to address any concerns, corrective actions or recommendations raised by a review board.

Superseded

Volume 2 - Defence Aviation Safety Regulation



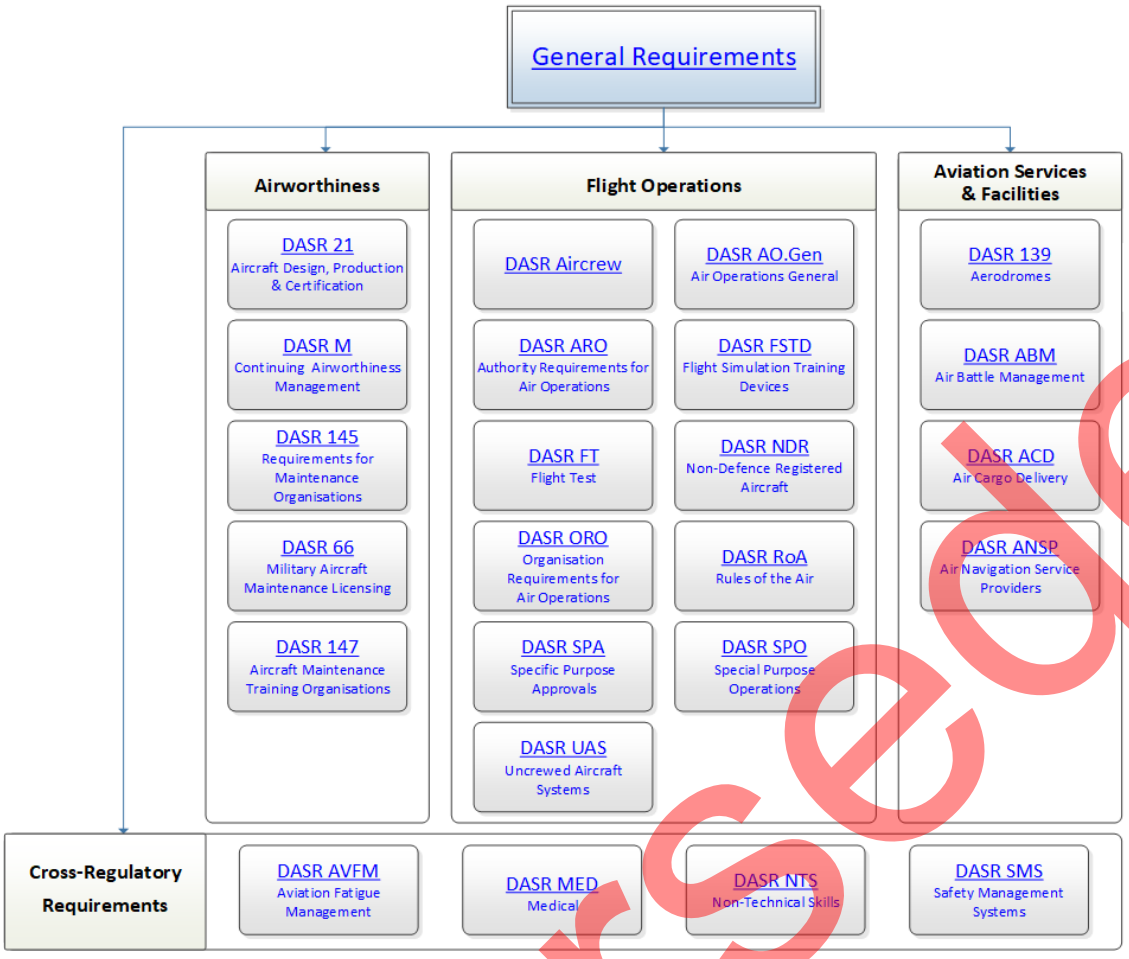
DASR Release 27 February 2025

DASR Version History

DASR Form 111—DASR Change Proposal (DCP)

Superseded

Menu Page



DASR Release 27 February 2025

DASR Version History

DASR Form 111—DASR Change Proposal (DCP)

Superseded

Introduction

Purpose

1. This Volume establishes requirements for the management of Defence Aviation Safety by commanders and managers.

Structure

2. The Defence Aviation Safety Regulation (DASR) is comprised of:

   a. General Requirements (GR), which are set out below in two subparts:

      i. Subpart A *Scope and applicability* defines the scope of the DASR and the applicability of the DASR parts.

      ii. Subpart B *Common requirements and provisions* establishes requirements and provisions that are each applicable to a significant proportion of regulated entities.

   b. the DASR parts, which are set out in Annex A.

3. DASR clauses and sub-clauses may have associated supporting information in the form of:

   a. **Acceptable Means of Compliance (AMC).** AMC is information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

   b. **Guidance Material (GM).** GM provides additional explanation to assist the application of the requirement and/or explain the AMC.

Context

4. This Volume implements applicable requirements set out in DASP Manual Volume 1 *Requirements for the DASP*.

5. DASP Manual Volume 3 *DASP Guidance* provides further information to support understanding of, and compliance with, the DASR.

Definitions

6. The following definitions apply within this Volume and its annex:

   Continuing Airworthiness. All of the processes ensuring that, at any time in its operating life, an aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Superseded

Defence Personnel. All Australian Public Service employees in the Department of Defence, Defence locally engaged employees, Defence civilians, Defence members and the equivalents from other Defence organisations on exchange to Defence.

Defence Registered Aircraft. An aircraft listed on the Defence aircraft register maintained by DASA.

State Aircraft. Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country. This includes Uncrewed Aircraft Systems (UAS).

7. Further definitions are available in the DASP Glossary.

General Requirements

Subpart A: Scope and applicability

GR.10 Aircraft registration

(a) State Aircraft operated by Defence must be:

(1) Defence Registered Aircraft; or

(2) managed in accordance with DASR NDR *Non-Defence Registered aircraft.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems.*

GR.15 Airworthiness of Defence Registered Aircraft

(a) The design, production and certification of Defence Registered Aircraft must be managed in accordance with DASR 21 *Aircraft Design, Production and Certification.*

(b) The Continuing Airworthiness of Defence Registered Aircraft, and components thereof, must be managed in accordance with:

(1) DASR M *Continuing Airworthiness Management*

(2) DASR 145 *Requirements for Maintenance Organisations*

(3) DASR 66 *Military Aircraft Maintenance Licencing*

(4) DASR 147 *Aircraft Maintenance Training Organisations.*

(c) By way of exception from DASR GR.15 (a) and (b), the operator of a Defence Registered aircraft in one of the following categories may demonstrate airworthiness management that achieves a level of Aviation Safety at least equivalent to comparable Australian civil registered aircraft: ☐ **AMC**

Superseded

(1) crewed hot air balloons used in balloon transport operations under Part 131 of the Civil Aviation Safety Regulations 1998 (CASR)

(2) Warbird, Historic and Replica Aircraft operated under CASR Part 132.

GR.20 Operations personnel

(a) Personnel and organisations involved in Defence aviation operations must comply with:

(1) DASR *Aircrew*

(2) DASR MED *Medical*

(3) DASR AVFM *Aviation Fatigue Management*

(4) DASR NTS *Non-Technical Skills.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems*.

GR.25 Operation of State Aircraft

(a) The operation of State Aircraft by Defence must be in accordance with:

(1) DASR AO.Gen *Air Operations – General*

(2) DASR ARO *Authority Requirements for Air Operations*

(3) DASR ORO *Organisation Requirements for Air Operations*

(4) DASR NDR *Non-Defence Registered aircraft*

(5) DASR SPA *Specific Purpose Approval*

(6) DASR SPO *Special Purpose Operations*

(7) DASR UAS *Uncrewed Aircraft Systems*

(8) DASR FT *Flight Tests*

(9) DASR ACD *Air Cargo Delivery*

(10) DASR RoA *Rules of the Air.*

(b) Defence Registered Aircraft must have a valid type-certificate[1] to conduct operations. The type-certificate must be issued in accordance with DASR 21 Subpart B *Military Type-Certificates and Military Restricted Type-Certificates.*

(c) Defence Registered Aircraft must have a valid certificate of airworthiness[2] to conduct operations. The certificate must be issued in accordance with DASR 21 Subpart H *Military Certificates of Airworthiness and Military Restricted Certificates of Airworthiness.*

Superseded

(d) By way of exception from paragraph (c), an aircraft may be operated where a valid permit to fly has been issued. Any such permit to fly must be issued in accordance with DASR 21 Subpart P *Military Permit to Fly.*

(e) By way of exception from paragraph (c), UAS may be operated without a type-certificate or certificate of airworthiness, provided they are compliant with DASR UAS.10.

GR.27 Operation of Foreign Military Aircraft (FMA) in Australia

☐ **GM**

(a) The Sponsor who approves FMA to operate in Australian territorial airspace must:

1. ensure that FMA operations are conducted in a manner such that risks to the safety of other airspace users and people on the ground are eliminated So Far As is Reasonably Practicable (SFARP) and, where not reasonably practicable to eliminate, minimised SFARP ☐ **GM** ☐ **AMC**

2. issue an Authority to Operate (AUTHOP) to document controls that manage the safety of other airspace users and people on the ground ☐ **GM** ☐ **AMC**

3. monitor the effectiveness of controls against the risk to the safety of other airspace users and people on the ground; and any significant safety events—and suspend FMA operations when there is concern that safety may be compromised. ☐ **AMC**

GR.30 Flight Simulation Training Devices

(a) Flight Simulation Training Devices and their use must be managed in accordance with DASR FSTD *Flight Simulation Training Devices.*

GR.35 Aerodromes

(a) Defence Aerodromes, including shipborne heliports, must be operated, managed and certified in accordance with DASR 139 *Aerodromes.*

GR.37 Air Navigation Services

(a) The provision of Air Traffic Management services and Air Navigation Services by Defence, including equipment, systems, and organisations must be in accordance with:

(1) DASR ANSP *Air Navigation Service Providers*; and

(2) the regulations identified by GR.20 *Operations personnel*, as applicable.

Superseded

GR.38 Air Battle Management

(a) The provision of Air Battle Management operations conducted by Defence, including equipment, systems and organisations, must be in accordance with:

(1) DASR ABM *Air Battle Management*

(2) the regulations identified in GR.20 *Operations personnel*, as applicable

(3) DASR AO.GEN.05 *Management of OIP.*

Subpart B: Common requirements and provisions

GR.40 Occurrence reporting

(a) Where required by other DASR, regulated entities must report aviation safety occurrences to DASA in a form and manner acceptable to DASA. ☐ **AMC**

GR.60 Oversight and enforcement

(a) Regulated entities must cooperate with DASA with a view to assuring compliance with the DASR.

(b) For the purposes of the implementation of paragraph (a), regulated entities must conduct investigations, including ramp inspections, and must take any measure to prevent the continuation of a non-compliance.

(c) In order to facilitate the taking of appropriate enforcement action by competent authorities, regulated entities shall exchange information on identified infringements with DASA.

(d) When objective evidence is found showing non-compliance with the applicable requirements of the DASR, DASA will issue a finding which shall be classified as follows: ☐ **GM**

(1) DASR Level 1 finding - Any non-compliance with the DASR requirements which lowers the safety standard and seriously hazards flight safety.

(2) DASR Level 2 finding - Any non-compliance with the DASR requirements which lowers the safety standard and possibly hazards flight safety.

(3) DASR Level 3 finding - Any non-compliance with the DASR requirements or potential problem that could lower the safety standard and possibly hazards flight safety.

(e) After receipt of notification for a Level 1 or Level 2 finding, the regulated entity shall, to the satisfaction of DASA and within a period agreed by DASA: ☐ **GM**

(1) implement an immediate action to eliminate so far as is reasonably practicable (SFARP), or otherwise minimise SFARP, the Aviation Safety risk associated with the non-compliance;

(2) identify the root cause of the non-compliance;

Superseded

(3) define a corrective action plan; and

(4) demonstrate effective corrective action implementation.

(f) After receipt of notification for a Level 3 finding, the regulated entity shall:

(1) manage the finding internally through its own management system; and

(2) implement action as necessary to address the non-compliance or potential problem.

(g) Non-compliance by the regulated entity with the actions identified in DASR GR.60(e) will result in a full or partial suspension of the relevant DASR authorisation by DASA.

GR.80 Flexibility provisions

(a) (Reserved)

(b) Where an equivalent level of protection to that attained by the application of the DASR can be achieved by other means, DASA may approve exception from those DASR.

(c) DASA may allow a credible and defensible level of military aviation safety performance where an equivalent level of protection to that provided by the application of the DASR cannot be demonstrated, but can be supported by the application of sound risk management principles. ☐ **GM**

(d) DASA must acknowledge that regulated organisations may deviate from the substantive requirements laid down in this Regulation in the event of compelling operational imperatives or emergencies. ☐ **GM**

Annex A: DASR parts

See menu page

- DASR 21 *Aircraft Design, Production and Certification*
- DASR 66 *Military Aircraft Maintenance Licencing*
- DASR 139 *Aerodromes*
- DASR 145 *Requirements for Maintenance Organisations*
- DASR 147 *Aircraft Maintenance Training Organisations.*
- DASR ABM *Air Battle Management*
- DASR ACD *Air Cargo Delivery*
- DASR *Aircrew*
- DASR ANSP *Air Navigation Service Providers*
- DASR AO.Gen *Air Operations General*

Superseded

- DASR ARO *Authority Requirements for Air Operations*
- DASR AVFM *Aviation Fatigue Management*
- DASR FSTD *Flight Simulation Training Devices*
- DASR FT *Flight Tests*
- DASR M *Continuing Airworthiness Management*
- DASR MED *Medical*
- DASR NDR *Non-Defence Registered aircraft*
- DASR NTS *Non-Technical Skills*
- DASR ORO *Organisation Requirements for Air Operations*
- DASR RoA *Rules of the Air.*
- DASR SMS *Aviation Safety Management Systems*
- DASR SPA *Specific Purpose Approval*
- DASR SPO *Special Purpose Operations*
- DASR UAS *Uncrewed Aircraft Systems*

Superseded

General Requirements

Volume 2: Defence Aviation Safety Regulation

Introduction

Purpose

1. This Volume establishes requirements for the management of Defence Aviation Safety by commanders and managers.

Structure

2. The Defence Aviation Safety Regulation (DASR) is comprised of:

   a. General Requirements (GR), which are set out below in two subparts:

      i. Subpart A *Scope and applicability* defines the scope of the DASR and the applicability of the DASR parts.

      ii. Subpart B *Common requirements and provisions* establishes requirements and provisions that are each applicable to a significant proportion of regulated entities.

   b. the DASR parts, which are set out in Annex A.

3. DASR clauses and sub-clauses may have associated supporting information in the form of:

   a. **Acceptable Means of Compliance (AMC).** AMC is information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

   b. **Guidance Material (GM).** GM provides additional explanation to assist the application of the requirement and/or explain the AMC.

Context

4. This Volume implements applicable requirements set out in DASP Manual Volume 1 *Requirements for the DASP*.

5. DASP Manual Volume 3 *DASP Guidance* provides further information to support understanding of, and compliance with, the DASR.

Definitions

6. The following definitions apply within this Volume and its annex:

   Continuing Airworthiness. All of the processes ensuring that, at any time in its operating life, an aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Superseded

Defence Personnel. All Australian Public Service employees in the Department of Defence, Defence locally engaged employees, Defence civilians, Defence members and the equivalents from other Defence organisations on exchange to Defence.

Defence Registered Aircraft. An aircraft listed on the Defence aircraft register maintained by DASA.

State Aircraft. Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country. This includes Uncrewed Aircraft Systems (UAS).

7. Further definitions are available in the DASP Glossary.

General Requirements

Subpart A: Scope and applicability

GR.10 Aircraft registration

(a) State Aircraft operated by Defence must be:

(1) Defence Registered Aircraft; or

(2) managed in accordance with DASR NDR *Non-Defence Registered aircraft.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems.*

GR.15 Airworthiness of Defence Registered Aircraft

(a) The design, production and certification of Defence Registered Aircraft must be managed in accordance with DASR 21 *Aircraft Design, Production and Certification.*

(b) The Continuing Airworthiness of Defence Registered Aircraft, and components thereof, must be managed in accordance with:

(1) DASR M *Continuing Airworthiness Management*

(2) DASR 145 *Requirements for Maintenance Organisations*

(3) DASR 66 *Military Aircraft Maintenance Licencing*

(4) DASR 147 *Aircraft Maintenance Training Organisations.*

(c) By way of exception from DASR GR.15 (a) and (b), the operator of a Defence Registered aircraft in one of the following categories may demonstrate airworthiness management that achieves a level of Aviation Safety at least equivalent to comparable Australian civil registered aircraft: ☐ **AMC**

Superseded

(1) crewed hot air balloons used in balloon transport operations under Part 131 of the Civil Aviation Safety Regulations 1998 (CASR)

(2) Warbird, Historic and Replica Aircraft operated under CASR Part 132.

GR.20 Operations personnel

(a) Personnel and organisations involved in Defence aviation operations must comply with:

(1) DASR *Aircrew*

(2) DASR MED *Medical*

(3) DASR AVFM *Aviation Fatigue Management*

(4) DASR NTS *Non-Technical Skills.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems*.

GR.25 Operation of State Aircraft

(a) The operation of State Aircraft by Defence must be in accordance with:

(1) DASR AO.Gen *Air Operations – General*

(2) DASR ARO *Authority Requirements for Air Operations*

(3) DASR ORO *Organisation Requirements for Air Operations*

(4) DASR NDR *Non-Defence Registered aircraft*

(5) DASR SPA *Specific Purpose Approval*

(6) DASR SPO *Special Purpose Operations*

(7) DASR UAS *Uncrewed Aircraft Systems*

(8) DASR FT *Flight Tests*

(9) DASR ACD *Air Cargo Delivery*

(10) DASR RoA *Rules of the Air.*

(b) Defence Registered Aircraft must have a valid type-certificate[1] to conduct operations. The type-certificate must be issued in accordance with DASR 21 Subpart B *Military Type-Certificates and Military Restricted Type-Certificates.*

(c) Defence Registered Aircraft must have a valid certificate of airworthiness[2] to conduct operations. The certificate must be issued in accordance with DASR 21 Subpart H *Military Certificates of Airworthiness and Military Restricted Certificates of Airworthiness.*

Superseded

(d) By way of exception from paragraph (c), an aircraft may be operated where a valid permit to fly has been issued. Any such permit to fly must be issued in accordance with DASR 21 Subpart P *Military Permit to Fly.*

(e) By way of exception from paragraph (c), UAS may be operated without a type-certificate or certificate of airworthiness, provided they are compliant with DASR UAS.10.

GR.27 Operation of Foreign Military Aircraft (FMA) in Australia

☐ **GM**

(a) The Sponsor who approves FMA to operate in Australian territorial airspace must:

1. ensure that FMA operations are conducted in a manner such that risks to the safety of other airspace users and people on the ground are eliminated So Far As is Reasonably Practicable (SFARP) and, where not reasonably practicable to eliminate, minimised SFARP ☐ **GM** ☐ **AMC**

2. issue an Authority to Operate (AUTHOP) to document controls that manage the safety of other airspace users and people on the ground ☐ **GM** ☐ **AMC**

3. monitor the effectiveness of controls against the risk to the safety of other airspace users and people on the ground; and any significant safety events—and suspend FMA operations when there is concern that safety may be compromised. ☐ **AMC**

GR.30 Flight Simulation Training Devices

(a) Flight Simulation Training Devices and their use must be managed in accordance with DASR FSTD *Flight Simulation Training Devices.*

GR.35 Aerodromes

(a) Defence Aerodromes, including shipborne heliports, must be operated, managed and certified in accordance with DASR 139 *Aerodromes.*

GR.37 Air Navigation Services

(a) The provision of Air Traffic Management services and Air Navigation Services by Defence, including equipment, systems, and organisations must be in accordance with:

(1) DASR ANSP *Air Navigation Service Providers*; and

(2) the regulations identified by GR.20 *Operations personnel*, as applicable.

Superseded

GR.38 Air Battle Management

(a) The provision of Air Battle Management operations conducted by Defence, including equipment, systems and organisations, must be in accordance with:

(1) DASR ABM *Air Battle Management*

(2) the regulations identified in GR.20 *Operations personnel*, as applicable

(3) DASR AO.GEN.05 *Management of OIP.*

Subpart B: Common requirements and provisions

GR.40 Occurrence reporting

(a) Where required by other DASR, regulated entities must report aviation safety occurrences to DASA in a form and manner acceptable to DASA. ☐ **AMC**

GR.60 Oversight and enforcement

(a) Regulated entities must cooperate with DASA with a view to assuring compliance with the DASR.

(b) For the purposes of the implementation of paragraph (a), regulated entities must conduct investigations, including ramp inspections, and must take any measure to prevent the continuation of a non-compliance.

(c) In order to facilitate the taking of appropriate enforcement action by competent authorities, regulated entities shall exchange information on identified infringements with DASA.

(d) When objective evidence is found showing non-compliance with the applicable requirements of the DASR, DASA will issue a finding which shall be classified as follows: ☐ **GM**

(1) DASR Level 1 finding - Any non-compliance with the DASR requirements which lowers the safety standard and seriously hazards flight safety.

(2) DASR Level 2 finding - Any non-compliance with the DASR requirements which lowers the safety standard and possibly hazards flight safety.

(3) DASR Level 3 finding - Any non-compliance with the DASR requirements or potential problem that could lower the safety standard and possibly hazards flight safety.

(e) After receipt of notification for a Level 1 or Level 2 finding, the regulated entity shall, to the satisfaction of DASA and within a period agreed by DASA: ☐ **GM**

(1) implement an immediate action to eliminate so far as is reasonably practicable (SFARP), or otherwise minimise SFARP, the Aviation Safety risk associated with the non-compliance;

(2) identify the root cause of the non-compliance;

Superseded

(3) define a corrective action plan; and

(4) demonstrate effective corrective action implementation.

(f) After receipt of notification for a Level 3 finding, the regulated entity shall:

(1) manage the finding internally through its own management system; and

(2) implement action as necessary to address the non-compliance or potential problem.

(g) Non-compliance by the regulated entity with the actions identified in DASR GR.60(e) will result in a full or partial suspension of the relevant DASR authorisation by DASA.

GR.80 Flexibility provisions

(a) (Reserved)

(b) Where an equivalent level of protection to that attained by the application of the DASR can be achieved by other means, DASA may approve exception from those DASR.

(c) DASA may allow a credible and defensible level of military aviation safety performance where an equivalent level of protection to that provided by the application of the DASR cannot be demonstrated, but can be supported by the application of sound risk management principles. ☐ **GM**

(d) DASA must acknowledge that regulated organisations may deviate from the substantive requirements laid down in this Regulation in the event of compelling operational imperatives or emergencies. ☐ **GM**

Annex A: DASR parts

See menu page

- DASR 21 *Aircraft Design, Production and Certification*
- DASR 66 *Military Aircraft Maintenance Licencing*
- DASR 139 *Aerodromes*
- DASR 145 *Requirements for Maintenance Organisations*
- DASR 147 *Aircraft Maintenance Training Organisations.*
- DASR ABM *Air Battle Management*
- DASR ACD *Air Cargo Delivery*
- DASR *Aircrew*
- DASR ANSP *Air Navigation Service Providers*
- DASR AO.Gen *Air Operations General*

Superseded

- DASR ARO *Authority Requirements for Air Operations*
- DASR AVFM *Aviation Fatigue Management*
- DASR FSTD *Flight Simulation Training Devices*
- DASR FT *Flight Tests*
- DASR M *Continuing Airworthiness Management*
- DASR MED *Medical*
- DASR NDR *Non-Defence Registered aircraft*
- DASR NTS *Non-Technical Skills*
- DASR ORO *Organisation Requirements for Air Operations*
- DASR RoA *Rules of the Air.*
- DASR SMS *Aviation Safety Management Systems*
- DASR SPA *Specific Purpose Approval*
- DASR SPO *Special Purpose Operations*
- DASR UAS *Uncrewed Aircraft Systems*

Superseded

Introduction

Purpose

1. This Volume establishes requirements for the management of Defence Aviation Safety by commanders and managers.

Structure

2. The Defence Aviation Safety Regulation (DASR) is comprised of:

   a. General Requirements (GR), which are set out below in two subparts:

      i. Subpart A *Scope and applicability* defines the scope of the DASR and the applicability of the DASR parts.

      ii. Subpart B *Common requirements and provisions* establishes requirements and provisions that are each applicable to a significant proportion of regulated entities.

   b. the DASR parts, which are set out in Annex A.

3. DASR clauses and sub-clauses may have associated supporting information in the form of:

   a. **Acceptable Means of Compliance (AMC).** AMC is information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

   b. **Guidance Material (GM).** GM provides additional explanation to assist the application of the requirement and/or explain the AMC.

Context

4. This Volume implements applicable requirements set out in DASP Manual Volume 1 *Requirements for the DASP.*

5. DASP Manual Volume 3 *DASP Guidance* provides further information to support understanding of, and compliance with, the DASR.

Definitions

6. The following definitions apply within this Volume and its annex:

   Continuing Airworthiness. All of the processes ensuring that, at any time in its operating life, an aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Superseded

Defence Personnel. All Australian Public Service employees in the Department of Defence, Defence locally engaged employees, Defence civilians, Defence members and the equivalents from other Defence organisations on exchange to Defence.

Defence Registered Aircraft. An aircraft listed on the Defence aircraft register maintained by DASA.

State Aircraft. Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country. This includes Uncrewed Aircraft Systems (UAS).

7. Further definitions are available in the DASP Glossary.

General Requirements

Subpart A: Scope and applicability

GR.10 Aircraft registration

(a) State Aircraft operated by Defence must be:

(1) Defence Registered Aircraft; or

(2) managed in accordance with DASR NDR *Non-Defence Registered aircraft.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems.*

GR.15 Airworthiness of Defence Registered Aircraft

(a) The design, production and certification of Defence Registered Aircraft must be managed in accordance with DASR 21 *Aircraft Design, Production and Certification.*

(b) The Continuing Airworthiness of Defence Registered Aircraft, and components thereof, must be managed in accordance with:

(1) DASR M *Continuing Airworthiness Management*

(2) DASR 145 *Requirements for Maintenance Organisations*

(3) DASR 66 *Military Aircraft Maintenance Licencing*

(4) DASR 147 *Aircraft Maintenance Training Organisations.*

(c) By way of exception from DASR GR.15 (a) and (b), the operator of a Defence Registered aircraft in one of the following categories may demonstrate airworthiness management that achieves a level of Aviation Safety at least equivalent to comparable Australian civil registered aircraft: ☐ **AMC**

(1) crewed hot air balloons used in balloon transport operations under Part 131 of the Civil Aviation Safety Regulations 1998 (CASR)

Superseded

(2) Warbird, Historic and Replica Aircraft operated under CASR Part 132.

GR.20 Operations personnel

(a) Personnel and organisations involved in Defence aviation operations must comply with:

(1) DASR *Aircrew*

(2) DASR MED *Medical*

(3) DASR AVFM *Aviation Fatigue Management*

(4) DASR NTS *Non-Technical Skills.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems*.

GR.25 Operation of State Aircraft

(a) The operation of State Aircraft by Defence must be in accordance with:

(1) DASR AO.Gen *Air Operations – General*

(2) DASR ARO *Authority Requirements for Air Operations*

(3) DASR ORO *Organisation Requirements for Air Operations*

(4) DASR NDR *Non-Defence Registered aircraft*

(5) DASR SPA *Specific Purpose Approval*

(6) DASR SPO *Special Purpose Operations*

(7) DASR UAS *Uncrewed Aircraft Systems*

(8) DASR FT *Flight Tests*

(9) DASR ACD *Air Cargo Delivery*

(10) DASR RoA *Rules of the Air.*

(b) Defence Registered Aircraft must have a valid type-certificate[1] to conduct operations. The type-certificate must be issued in accordance with DASR 21 Subpart B *Military Type-Certificates and Military Restricted Type-Certificates.*

(c) Defence Registered Aircraft must have a valid certificate of airworthiness[2] to conduct operations. The certificate must be issued in accordance with DASR 21 Subpart H *Military Certificates of Airworthiness and Military Restricted Certificates of Airworthiness.*

(d) By way of exception from paragraph (c), an aircraft may be operated where a valid permit to fly has been issued. Any such permit to fly must be issued in accordance with DASR 21 Subpart P *Military Permit to Fly.*

Superseded

(e) By way of exception from paragraph (c), UAS may be operated without a type-certificate or certificate of airworthiness, provided they are compliant with DASR UAS.10.

GR.27 Operation of Foreign Military Aircraft (FMA) in Australia

☐ **GM**

(a) The Sponsor who approves FMA to operate in Australian territorial airspace must:

1. ensure that FMA operations are conducted in a manner such that risks to the safety of other airspace users and people on the ground are eliminated So Far As is Reasonably Practicable (SFARP) and, where not reasonably practicable to eliminate, minimised SFARP ☐ **GM** ☐ **AMC**

2. issue an Authority to Operate (AUTHOP) to document controls that manage the safety of other airspace users and people on the ground ☐ **GM** ☐ **AMC**

3. monitor the effectiveness of controls against the risk to the safety of other airspace users and people on the ground; and any significant safety events—and suspend FMA operations when there is concern that safety may be compromised. ☐ **AMC**

GR.30 Flight Simulation Training Devices

(a) Flight Simulation Training Devices and their use must be managed in accordance with DASR FSTD *Flight Simulation Training Devices.*

GR.35 Aerodromes

(a) Defence Aerodromes, including shipborne heliports, must be operated, managed and certified in accordance with DASR 139 *Aerodromes.*

GR.37 Air Navigation Services

(a) The provision of Air Traffic Management services and Air Navigation Services by Defence, including equipment, systems, and organisations must be in accordance with:

(1) DASR ANSP *Air Navigation Service Providers*; and

(2) the regulations identified by GR.20 *Operations personnel*, as applicable.

GR.38 Air Battle Management

(a) The provision of Air Battle Management operations conducted by Defence, including equipment, systems and organisations, must be in accordance with:

(1) DASR ABM *Air Battle Management*

(2) the regulations identified in GR.20 *Operations personnel*, as applicable

Superseded

(3) DASR AO.GEN.05 *Management of OIP.*

Subpart B: Common requirements and provisions

GR.40 Occurrence reporting

(a) Where required by other DASR, regulated entities must report aviation safety occurrences to DASA in a form and manner acceptable to DASA. ☐ **AMC**

GR.60 Oversight and enforcement

(a) Regulated entities must cooperate with DASA with a view to assuring compliance with the DASR.

(b) For the purposes of the implementation of paragraph (a), regulated entities must conduct investigations, including ramp inspections, and must take any measure to prevent the continuation of a non-compliance.

(c) In order to facilitate the taking of appropriate enforcement action by competent authorities, regulated entities shall exchange information on identified infringements with DASA.

(d) When objective evidence is found showing non-compliance with the applicable requirements of the DASR, DASA will issue a finding which shall be classified as follows: ☐ **GM**

(1) DASR Level 1 finding - Any non-compliance with the DASR requirements which lowers the safety standard and seriously hazards flight safety.

(2) DASR Level 2 finding - Any non-compliance with the DASR requirements which lowers the safety standard and possibly hazards flight safety.

(3) DASR Level 3 finding - Any non-compliance with the DASR requirements or potential problem that could lower the safety standard and possibly hazards flight safety.

(e) After receipt of notification for a Level 1 or Level 2 finding, the regulated entity shall, to the satisfaction of DASA and within a period agreed by DASA: ☐ **GM**

(1) implement an immediate action to eliminate so far as is reasonably practicable (SFARP), or otherwise minimise SFARP, the Aviation Safety risk associated with the non-compliance;

(2) identify the root cause of the non-compliance;

(3) define a corrective action plan; and

(4) demonstrate effective corrective action implementation.

(f) After receipt of notification for a Level 3 finding, the regulated entity shall:

(1) manage the finding internally through its own management system; and

(2) implement action as necessary to address the non-compliance or potential problem.

Superseded

(g) Non-compliance by the regulated entity with the actions identified in DASR GR.60(e) will result in a full or partial suspension of the relevant DASR authorisation by DASA.

GR.80 Flexibility provisions

(a) (Reserved)

(b) Where an equivalent level of protection to that attained by the application of the DASR can be achieved by other means, DASA may approve exception from those DASR.

(c) DASA may allow a credible and defensible level of military aviation safety performance where an equivalent level of protection to that provided by the application of the DASR cannot be demonstrated, but can be supported by the application of sound risk management principles. ☐ **GM**

(d) DASA must acknowledge that regulated organisations may deviate from the substantive requirements laid down in this Regulation in the event of compelling operational imperatives or emergencies. ☐ **GM**

Annex A: DASR parts

See menu page

- DASR 21 *Aircraft Design, Production and Certification*
- DASR 66 *Military Aircraft Maintenance Licencing*
- DASR 139 *Aerodromes*
- DASR 145 *Requirements for Maintenance Organisations*
- DASR 147 *Aircraft Maintenance Training Organisations.*
- DASR ABM *Air Battle Management*
- DASR ACD *Air Cargo Delivery*
- DASR *Aircrew*
- DASR ANSP *Air Navigation Service Providers*
- DASR AO.Gen *Air Operations General*
- DASR ARO *Authority Requirements for Air Operations*
- DASR AVFM *Aviation Fatigue Management*
- DASR FSTD *Flight Simulation Training Devices*
- DASR FT *Flight Tests*
- DASR M *Continuing Airworthiness Management*

Superseded

- DASR MED *Medical*
- DASR NDR *Non-Defence Registered aircraft*
- DASR NTS *Non-Technical Skills*
- DASR ORO *Organisation Requirements for Air Operations*
- DASR RoA *Rules of the Air.*
- DASR SMS *Aviation Safety Management Systems*
- DASR SPA *Specific Purpose Approval*
- DASR SPO *Special Purpose Operations*
- DASR UAS *Uncrewed Aircraft Systems*

Superseded

Introduction

Purpose

1. This Volume establishes requirements for the management of Defence Aviation Safety by commanders and managers.

Structure

2. The Defence Aviation Safety Regulation (DASR) is comprised of:

   a. General Requirements (GR), which are set out below in two subparts:

      i. Subpart A *Scope and applicability* defines the scope of the DASR and the applicability of the DASR parts.

      ii. Subpart B *Common requirements and provisions* establishes requirements and provisions that are each applicable to a significant proportion of regulated entities.

   b. the DASR parts, which are set out in Annex A.

3. DASR clauses and sub-clauses may have associated supporting information in the form of:

   a. **Acceptable Means of Compliance (AMC).** AMC is information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

   b. **Guidance Material (GM).** GM provides additional explanation to assist the application of the requirement and/or explain the AMC.

Context

4. This Volume implements applicable requirements set out in DASP Manual Volume 1 *Requirements for the DASP.*

5. DASP Manual Volume 3 *DASP Guidance* provides further information to support understanding of, and compliance with, the DASR.

Definitions

6. The following definitions apply within this Volume and its annex:

   Continuing Airworthiness. All of the processes ensuring that, at any time in its operating life, an aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Superseded

Defence Personnel. All Australian Public Service employees in the Department of Defence, Defence locally engaged employees, Defence civilians, Defence members and the equivalents from other Defence organisations on exchange to Defence.

Defence Registered Aircraft. An aircraft listed on the Defence aircraft register maintained by DASA.

State Aircraft. Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country. This includes Uncrewed Aircraft Systems (UAS).

7. Further definitions are available in the DASP Glossary.

General Requirements

Subpart A: Scope and applicability

GR.10 Aircraft registration

(a) State Aircraft operated by Defence must be:

(1) Defence Registered Aircraft; or

(2) managed in accordance with DASR NDR *Non-Defence Registered aircraft.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems.*

GR.15 Airworthiness of Defence Registered Aircraft

(a) The design, production and certification of Defence Registered Aircraft must be managed in accordance with DASR 21 *Aircraft Design, Production and Certification.*

(b) The Continuing Airworthiness of Defence Registered Aircraft, and components thereof, must be managed in accordance with:

(1) DASR M *Continuing Airworthiness Management*

(2) DASR 145 *Requirements for Maintenance Organisations*

(3) DASR 66 *Military Aircraft Maintenance Licencing*

(4) DASR 147 *Aircraft Maintenance Training Organisations.*

(c) By way of exception from DASR GR.15 (a) and (b), the operator of a Defence Registered aircraft in one of the following categories may demonstrate airworthiness management that achieves a level of Aviation Safety at least equivalent to comparable Australian civil registered aircraft: ☐ **AMC**

(1) crewed hot air balloons used in balloon transport operations under Part 131 of the Civil Aviation Safety Regulations 1998 (CASR)

Superseded

(2) Warbird, Historic and Replica Aircraft operated under CASR Part 132.

GR.20 Operations personnel

(a) Personnel and organisations involved in Defence aviation operations must comply with:

(1) DASR *Aircrew*

(2) DASR MED *Medical*

(3) DASR AVFM *Aviation Fatigue Management*

(4) DASR NTS *Non-Technical Skills.*

(b) Paragraph (a) is not applicable to Uncrewed Aircraft Systems except as required by DASR UAS *Uncrewed Aircraft Systems*.

GR.25 Operation of State Aircraft

(a) The operation of State Aircraft by Defence must be in accordance with:

(1) DASR AO.Gen *Air Operations – General*

(2) DASR ARO *Authority Requirements for Air Operations*

(3) DASR ORO *Organisation Requirements for Air Operations*

(4) DASR NDR *Non-Defence Registered aircraft*

(5) DASR SPA *Specific Purpose Approval*

(6) DASR SPO *Special Purpose Operations*

(7) DASR UAS *Uncrewed Aircraft Systems*

(8) DASR FT *Flight Tests*

(9) DASR ACD *Air Cargo Delivery*

(10) DASR RoA *Rules of the Air.*

(b) Defence Registered Aircraft must have a valid type-certificate[1] to conduct operations. The type-certificate must be issued in accordance with DASR 21 Subpart B *Military Type-Certificates and Military Restricted Type-Certificates.*

(c) Defence Registered Aircraft must have a valid certificate of airworthiness[2] to conduct operations. The certificate must be issued in accordance with DASR 21 Subpart H *Military Certificates of Airworthiness and Military Restricted Certificates of Airworthiness.*

(d) By way of exception from paragraph (c), an aircraft may be operated where a valid permit to fly has been issued. Any such permit to fly must be issued in accordance with DASR 21 Subpart P *Military Permit to Fly.*

Superseded

(e) By way of exception from paragraph (c), UAS may be operated without a type-certificate or certificate of airworthiness, provided they are compliant with DASR UAS.10.

GR.27 Operation of Foreign Military Aircraft (FMA) in Australia

☐ **GM**

(a) The Sponsor who approves FMA to operate in Australian territorial airspace must:

1. ensure that FMA operations are conducted in a manner such that risks to the safety of other airspace users and people on the ground are eliminated So Far As is Reasonably Practicable (SFARP) and, where not reasonably practicable to eliminate, minimised SFARP ☐ **GM** ☐ **AMC**

2. issue an Authority to Operate (AUTHOP) to document controls that manage the safety of other airspace users and people on the ground ☐ **GM** ☐ **AMC**

3. monitor the effectiveness of controls against the risk to the safety of other airspace users and people on the ground; and any significant safety events—and suspend FMA operations when there is concern that safety may be compromised. ☐ **AMC**

GR.30 Flight Simulation Training Devices

(a) Flight Simulation Training Devices and their use must be managed in accordance with DASR FSTD *Flight Simulation Training Devices.*

GR.35 Aerodromes

(a) Defence Aerodromes, including shipborne heliports, must be operated, managed and certified in accordance with DASR 139 *Aerodromes.*

GR.37 Air Navigation Services

(a) The provision of Air Traffic Management services and Air Navigation Services by Defence, including equipment, systems, and organisations must be in accordance with:

(1) DASR ANSP *Air Navigation Service Providers*; and

(2) the regulations identified by GR.20 *Operations personnel*, as applicable.

GR.38 Air Battle Management

(a) The provision of Air Battle Management operations conducted by Defence, including equipment, systems and organisations, must be in accordance with:

(1) DASR ABM *Air Battle Management*

(2) the regulations identified in GR.20 *Operations personnel*, as applicable

Superseded

(3) DASR AO.GEN.05 *Management of OIP.*

Subpart B: Common requirements and provisions

GR.40 Occurrence reporting

(a) Where required by other DASR, regulated entities must report aviation safety occurrences to DASA in a form and manner acceptable to DASA. ☐ **AMC**

GR.60 Oversight and enforcement

(a) Regulated entities must cooperate with DASA with a view to assuring compliance with the DASR.

(b) For the purposes of the implementation of paragraph (a), regulated entities must conduct investigations, including ramp inspections, and must take any measure to prevent the continuation of a non-compliance.

(c) In order to facilitate the taking of appropriate enforcement action by competent authorities, regulated entities shall exchange information on identified infringements with DASA.

(d) When objective evidence is found showing non-compliance with the applicable requirements of the DASR, DASA will issue a finding which shall be classified as follows: ☐ **GM**

(1) DASR Level 1 finding - Any non-compliance with the DASR requirements which lowers the safety standard and seriously hazards flight safety.

(2) DASR Level 2 finding - Any non-compliance with the DASR requirements which lowers the safety standard and possibly hazards flight safety.

(3) DASR Level 3 finding - Any non-compliance with the DASR requirements or potential problem that could lower the safety standard and possibly hazards flight safety.

(e) After receipt of notification for a Level 1 or Level 2 finding, the regulated entity shall, to the satisfaction of DASA and within a period agreed by DASA: ☐ **GM**

(1) implement an immediate action to eliminate so far as is reasonably practicable (SFARP), or otherwise minimise SFARP, the Aviation Safety risk associated with the non-compliance;

(2) identify the root cause of the non-compliance;

(3) define a corrective action plan; and

(4) demonstrate effective corrective action implementation.

(f) After receipt of notification for a Level 3 finding, the regulated entity shall:

(1) manage the finding internally through its own management system; and

(2) implement action as necessary to address the non-compliance or potential problem.

Superseded

(g) Non-compliance by the regulated entity with the actions identified in DASR GR.60(e) will result in a full or partial suspension of the relevant DASR authorisation by DASA.

GR.80 Flexibility provisions

(a) (Reserved)

(b) Where an equivalent level of protection to that attained by the application of the DASR can be achieved by other means, DASA may approve exception from those DASR.

(c) DASA may allow a credible and defensible level of military aviation safety performance where an equivalent level of protection to that provided by the application of the DASR cannot be demonstrated, but can be supported by the application of sound risk management principles. ☐ **GM**

(d) DASA must acknowledge that regulated organisations may deviate from the substantive requirements laid down in this Regulation in the event of compelling operational imperatives or emergencies. ☐ **GM**

Annex A: DASR parts

See menu page

- DASR 21 *Aircraft Design, Production and Certification*
- DASR 66 *Military Aircraft Maintenance Licencing*
- DASR 139 *Aerodromes*
- DASR 145 *Requirements for Maintenance Organisations*
- DASR 147 *Aircraft Maintenance Training Organisations.*
- DASR ABM *Air Battle Management*
- DASR ACD *Air Cargo Delivery*
- DASR *Aircrew*
- DASR ANSP *Air Navigation Service Providers*
- DASR AO.Gen *Air Operations General*
- DASR ARO *Authority Requirements for Air Operations*
- DASR AVFM *Aviation Fatigue Management*
- DASR FSTD *Flight Simulation Training Devices*
- DASR FT *Flight Tests*
- DASR M *Continuing Airworthiness Management*

Superseded

- DASR MED *Medical*
- DASR NDR *Non-Defence Registered aircraft*
- DASR NTS *Non-Technical Skills*
- DASR ORO *Organisation Requirements for Air Operations*
- DASR RoA *Rules of the Air.*
- DASR SMS *Aviation Safety Management Systems*
- DASR SPA *Specific Purpose Approval*
- DASR SPO *Special Purpose Operations*
- DASR UAS *Uncrewed Aircraft Systems*

Superseded

DASR 21 - Aircraft Design, Production and Certification

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

Superseded

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

Superseded

v. the master minimum equipment list.

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

Superseded

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

Superseded

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;
2. an identification of the affected aircraft; operating and maintenance associated documentation;
3. the action(s) required;
4. the compliance time for the required action(s); ☐ **GM**
5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

Superseded

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

Superseded

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

Superseded

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

Superseded

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

Superseded

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that:☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall:☐ **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; ☐ **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

   a) have a type-certificate issued in accordance with this DASR; or ☐ **GM**

   b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

Superseded

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

21.A.33 - Inspections and tests

☐ **AMC**

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: ☐ **GM**

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

Superseded

21.A.35 - Flight Tests

☐ **GM** ☐ **GM1**

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

Superseded

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and
2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification

Superseded

basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

Superseded

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

Superseded

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Superseded

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

Superseded

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor';☐ **AMC**

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs);☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

Superseded

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

Superseded

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

21.A.93 - Application

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

Superseded

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. ☐ **GM**

21.A.95 - Requirements for approval of a minor changes

☐ **AMC**

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. ☐ **GM**

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

Superseded

21.A.97 - Requirements for approval of a major change

☐ **AMC** ☐ **AMC1**

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

Superseded

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

   i. The general configuration or the principles of construction are not retained;

   ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

   i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

   ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). ☐ **GM**

Superseded

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

Superseded

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

Superseded

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued

Superseded

airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

Superseded

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed

Superseded

aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

Superseded

i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

Superseded

21.A.126 - Production inspection system

GM

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; GM

2. incoming materials, and bought or subcontracted parts, are properly identified; GM

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; GM1 GM2

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. GM

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; GM

2. materials subject to damage and deterioration are suitably stored and adequately protected; GM

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; GM

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; GM

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; GM

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. GM

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with

Superseded

those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;
2. A check on flight performance (using normal aircraft instrumentation);
3. A check on the proper functioning of all aircraft equipment and systems;
4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
5. A check of the operational characteristics of the aircraft on the ground;
6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-

Superseded

certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

Superseded

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties,

Superseded

conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

   iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

   iv. identification and traceability;

   v. manufacturing processes;

   vi. inspection and testing, including production flight tests;

   vii. calibration of tools, jigs, and test equipment;

   viii. non-conforming item control;

   ix. airworthiness coordination with the applicant for, or holder of, the design approval;

   x. records completion and retention;

   xi. personnel competence and qualification;

   xii. issue of airworthiness release documents;

   xiii. handling, storage and packing;

   xiv. internal quality audits and resulting corrective actions;

   xv. work within the terms of approval performed at any location other than the approved facilities;

   xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

   xvii. issue of military permit to fly and approval of associated flight conditions.

   The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

Superseded

GM

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation’s policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

(i) a description of the organisation’s processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

(ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

(iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

(iv) a policy for risk and safety management and associated methodologies;

(v) procedures to identify the instruments and equipment to be carried;

Superseded

(vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

21.A.145 - Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

Superseded

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

Superseded

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or
3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**
4. the production organisation no longer meets the requirements of; or
5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a

Superseded

military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

Superseded

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; ☐ **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

☐ **AMC to Subpart H**

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

Superseded

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

21.A.174 - Application

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

i. a statement of conformity:

– issued under DASR 21.A.163(b); or

– issued under DASR 21.A.130 and validated by the Authority; or

– for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

ii. a weight and balance report with a loading schedule;

iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

ii. in any other case:

– a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

– a weight and balance report with a loading schedule;

– the flight manual and any other manuals required by the Authority of the State of registry;

– historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

Superseded

– a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

ii. the applicant has submitted to DASA the following documents:

– evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document

– a copy of the applicable Type Certificate Data Sheet

– a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate

– a copy of the manufacturer's instructions for continuing airworthiness for the aircraft

– a copy of the parts catalogue for the aircraft

– a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

– continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)

– continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

Superseded

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

Superseded

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

Superseded

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. ☐ **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. ☐ **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: ☐ **AMC1** ☐ **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; ☐ **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design

Superseded

organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions

Superseded

and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

(a) (Reserved);

(b) (Reserved);

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

Superseded

v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

Superseded

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Superseded

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. **GM**

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: **AMC**

Superseded

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and ☐ **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: ☐ **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; ☐ **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

Superseded

ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. ☐ **GM**

(b) A repair shall be classified and approved by: ☐ **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. ☐ **GM**

21.A.445 - Unrepaired damage

☐ **AMC** ☐ **GM**

Superseded

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other

Superseded

person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

   i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

   ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

Superseded

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**

2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;

Superseded

3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;

4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

Superseded

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

Superseded

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or

2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or

3. the article has proved to give rise to unacceptable hazards in service; or

Superseded

4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

☐ **GM to Subpart P**

21.A.701 - Scope

☐ **GM - MPTF**

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes:☐ **GM - MPTF** ☐ **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)

Superseded

14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;

15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;

16. (Reserved)

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

Superseded

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

Superseded

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

Superseded

21.A.713 - Changes

☐ **GM**

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

Superseded

21.A.727 - Obligations of the holder of a military permit to fly

☐ AMC ☐ GM

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

☐ GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART A - GENERAL PROVISIONS

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; **GM1** **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

SUBPART C – MILITARY TYPE CERTIFICATE HOLDER ORGANISATION

21.1 - General

☐ **GM**

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

Superseded

ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

Superseded

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

Superseded

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

Superseded

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;
2. an identification of the affected aircraft; operating and maintenance associated documentation;
3. the action(s) required;
4. the compliance time for the required action(s); ☐ **GM**
5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out

Superseded

the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

Superseded

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

Superseded

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

Superseded

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

Superseded

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

   a) have a type-certificate issued in accordance with this DASR; or **GM**

   b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

Superseded

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

21.A.33 - Inspections and tests

☐ **AMC**

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: ☐ **GM**

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

Superseded

21.A.35 - Flight Tests

☐ **GM** ☐ **GM1**

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

Superseded

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and
2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

Superseded

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

Superseded

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and
2. To ensure that its responsibilities are properly discharged in accordance with:
   i. The appropriate provisions of this DASR; and
   ii. The terms of approval issued under DASR 21.A.80.
3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

Superseded

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

Superseded

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor';☐ **AMC**

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs);☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

Superseded

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this

Superseded

Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

21.A.93 - Application

☐ **AMC**

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; ☐ **GM1** ☐ **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; ☐ **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and ☐ **AMC** ☐ **GM**

Superseded

iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. ☐ **GM**

21.A.95 - Requirements for approval of a minor changes

☐ **AMC**

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. ☐ **GM**

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

Superseded

21.A.97 - Requirements for approval of a major change

☐ **AMC** ☐ **AMC1**

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

Superseded

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

   i. The general configuration or the principles of construction are not retained;

   ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

   i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

   ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). **GM**

Superseded

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

Superseded

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

Superseded

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued

Superseded

airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

Superseded

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

Superseded

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

Superseded

i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

Superseded

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

2. incoming materials, and bought or subcontracted parts, are properly identified; ☐ **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ☐ **GM1** ☐ **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. ☐ **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ☐ **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; ☐ **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ☐ **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ☐ **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ☐ **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ☐ **GM**

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with

Superseded

those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;
2. A check on flight performance (using normal aircraft instrumentation);
3. A check on the proper functioning of all aircraft equipment and systems;
4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
5. A check of the operational characteristics of the aircraft on the ground;
6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-

Superseded

certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

Superseded

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties,

Superseded

conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

   iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

   iv. identification and traceability;

   v. manufacturing processes;

   vi. inspection and testing, including production flight tests;

   vii. calibration of tools, jigs, and test equipment;

   viii. non-conforming item control;

   ix. airworthiness coordination with the applicant for, or holder of, the design approval;

   x. records completion and retention;

   xi. personnel competence and qualification;

   xii. issue of airworthiness release documents;

   xiii. handling, storage and packing;

   xiv. internal quality audits and resulting corrective actions;

   xv. work within the terms of approval performed at any location other than the approved facilities;

   xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

   xvii. issue of military permit to fly and approval of associated flight conditions.

   The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

Superseded

GM

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;
2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);
3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;
4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);
5. a list of certifying staff as referred to in DASR 21.A.145(d);
6. a general description of human resources;
7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;
8. a general description of the production organisation's scope of work relevant to the terms of approval;
9. the procedure for the notification of organisational changes to the Authority;
10. the amendment procedure for the production organisation exposition;
11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);
12. a list of those outside parties referred to in DASR 21.A.139(a); and
13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

Superseded

(vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

21.A.145 - Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

Superseded

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

Superseded

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or
3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**
4. the production organisation no longer meets the requirements of; or
5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a

Superseded

military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

Superseded

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

Superseded

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

21.A.174 - Application

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

i. a statement of conformity:

– issued under DASR 21.A.163(b); or

– issued under DASR 21.A.130 and validated by the Authority; or

– for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

ii. a weight and balance report with a loading schedule;

iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

ii. in any other case:

– a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

– a weight and balance report with a loading schedule;

– the flight manual and any other manuals required by the Authority of the State of registry;

– historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

– a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness

Superseded

Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

ii. the applicant has submitted to DASA the following documents:

– evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document

– a copy of the applicable Type Certificate Data Sheet

– a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate

– a copy of the manufacturer's instructions for continuing airworthiness for the aircraft

– a copy of the parts catalogue for the aircraft

– a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

– continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)

– continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. **GM**

21.A.177 - Amendment or modification

GM

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

Superseded

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

Superseded

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

Superseded

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. ☐ **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. ☐ **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: ☐ **AMC1** ☐ **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; ☐ **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required

Superseded

by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational

Superseded

suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

(a) (Reserved);

(b) (Reserved);

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

Superseded

v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

Superseded

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Superseded

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. **GM**

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: **AMC**

Superseded

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and ☐ **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: ☐ **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; ☐ **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

Superseded

ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. ☐ **GM**

(b) A repair shall be classified and approved by: ☐ **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. ☐ **GM**

21.A.445 - Unrepaired damage

☐ **AMC** ☐ **GM**

Superseded

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates

Superseded

shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

Superseded

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**

2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;

Superseded

3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;

4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

Superseded

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

Superseded

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or

2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or

3. the article has proved to give rise to unacceptable hazards in service; or

Superseded

4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;

Superseded

15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;

16. (Reserved)

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

Superseded

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);
2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;
3. the restrictions regarding carriage of persons other than flight crew;
4. the operating limitations, specific procedures or technical conditions to be met;
5. the specific flight test programme (if applicable);
6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;
2. the documentation supporting these conditions; and
3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

Superseded

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

Superseded

21.A.713 - Changes

☐ **GM**

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

Superseded

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

☐ **GM**

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

i. that State is providing oversight as State of Design; and

ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

ii. For a national programme, the Military Aviation Authority of this Nation/State,

Superseded

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

   i. the minimum syllabus of pilot type rating training, including determination of type rating;

Superseded

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the

Superseded

issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

Superseded

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

Superseded

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

Superseded

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b).☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data.☐ **AMC**☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

Superseded

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

Superseded

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

Superseded

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: ☐ **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; ☐ **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

   a) have a type-certificate issued in accordance with this DASR; or ☐ **GM**

   b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

Superseded

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

21.A.33 - Inspections and tests

☐ **AMC**

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: ☐ **GM**

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the

Superseded

statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

21.A.35 - Flight Tests

GM **GM1**

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. **GM**

Superseded

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and
2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

Superseded

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

Superseded

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and
2. To ensure that its responsibilities are properly discharged in accordance with:
   i. The appropriate provisions of this DASR; and
   ii. The terms of approval issued under DASR 21.A.80.
3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

Superseded

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

Superseded

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor';☐ **AMC**

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs);☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

Superseded

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this

Superseded

Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

21.A.93 - Application

☐ **AMC**

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; ☐ **GM1** ☐ **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; ☐ **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and ☐ **AMC** ☐ **GM**

Superseded

iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. ☐ **GM**

21.A.95 - Requirements for approval of a minor changes

☐ **AMC**

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. ☐ **GM**

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

Superseded

21.A.97 - Requirements for approval of a major change

☐ **AMC** ☐ **AMC1**

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

Superseded

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

   i. The general configuration or the principles of construction are not retained;

   ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

   i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

   ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). ☐ **GM**

Superseded

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

Superseded

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

Superseded

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued

Superseded

airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

Superseded

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

Superseded

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

Superseded

i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

Superseded

GM

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; GM

2. incoming materials, and bought or subcontracted parts, are properly identified; GM

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; GM1 GM2

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. GM

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; GM

2. materials subject to damage and deterioration are suitably stored and adequately protected; GM

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; GM

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; GM

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; GM

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. GM

Superseded

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with

those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;
2. A check on flight performance (using normal aircraft instrumentation);
3. A check on the proper functioning of all aircraft equipment and systems;
4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
5. A check of the operational characteristics of the aircraft on the ground;
6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-

Superseded

certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

Superseded

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties,

Superseded

conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

   iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

   iv. identification and traceability;

   v. manufacturing processes;

   vi. inspection and testing, including production flight tests;

   vii. calibration of tools, jigs, and test equipment;

   viii. non-conforming item control;

   ix. airworthiness coordination with the applicant for, or holder of, the design approval;

   x. records completion and retention;

   xi. personnel competence and qualification;

   xii. issue of airworthiness release documents;

   xiii. handling, storage and packing;

   xiv. internal quality audits and resulting corrective actions;

   xv. work within the terms of approval performed at any location other than the approved facilities;

   xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

   xvii. issue of military permit to fly and approval of associated flight conditions.

   The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

Superseded

GM

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;
2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);
3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;
4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);
5. a list of certifying staff as referred to in DASR 21.A.145(d);
6. a general description of human resources;
7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;
8. a general description of the production organisation's scope of work relevant to the terms of approval;
9. the procedure for the notification of organisational changes to the Authority;
10. the amendment procedure for the production organisation exposition;
11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);
12. a list of those outside parties referred to in DASR 21.A.139(a); and
13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

Superseded

(vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

21.A.145 - Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

Superseded

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

Superseded

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or
3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**
4. the production organisation no longer meets the requirements of; or
5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a

Superseded

military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

Superseded

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

Superseded

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

21.A.174 - Application

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

i. a statement of conformity:

– issued under DASR 21.A.163(b); or

– issued under DASR 21.A.130 and validated by the Authority; or

– for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

ii. a weight and balance report with a loading schedule;

iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

ii. in any other case:

– a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

– a weight and balance report with a loading schedule;

– the flight manual and any other manuals required by the Authority of the State of registry;

– historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

– a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness

Superseded

Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

ii. the applicant has submitted to DASA the following documents:

– evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document

– a copy of the applicable Type Certificate Data Sheet

– a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate

– a copy of the manufacturer's instructions for continuing airworthiness for the aircraft

– a copy of the parts catalogue for the aircraft

– a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

– continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)

– continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. **GM**

21.A.177 - Amendment or modification

GM

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

Superseded

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

Superseded

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

Superseded

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. ☐ **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. ☐ **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: ☐ **AMC1** ☐ **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; ☐ **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required

Superseded

by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational

Superseded

suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

(a) (Reserved);

(b) (Reserved);

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

Superseded

v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

Superseded

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Superseded

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. **GM**

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: **AMC**

Superseded

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and ☐ **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: ☐ **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; ☐ **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

Superseded

ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. ☐ **GM**

(b) A repair shall be classified and approved by: ☐ **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. ☐ **GM**

21.A.445 - Unrepaired damage

☐ **AMC** ☐ **GM**

Superseded

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates

Superseded

shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

Superseded

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**

2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;

Superseded

3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;

4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

Superseded

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

Superseded

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or

2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or

3. the article has proved to give rise to unacceptable hazards in service; or

Superseded

4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;

Superseded

15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;

16. (Reserved)

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

Superseded

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);
2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;
3. the restrictions regarding carriage of persons other than flight crew;
4. the operating limitations, specific procedures or technical conditions to be met;
5. the specific flight test programme (if applicable);
6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;
2. the documentation supporting these conditions; and
3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

Superseded

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

Superseded

21.A.713 - Changes

☐ **GM**

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

Superseded

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

☐ **GM**

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

   i. The materials and processes adequately conform to the specifications for the proposed type design;

   ii. The parts of the products adequately conform to the drawings in the proposed type design;

   iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.97 - Requirements for approval of a major change

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; **GM1** **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451.☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

21.1 - General

☐ **GM**

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

Superseded

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; **GM1** **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

   i. The materials and processes adequately conform to the specifications for the proposed type design;

   ii. The parts of the products adequately conform to the drawings in the proposed type design;

   iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; ☐ **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ☐ **GM1** ☐ **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. ☐ **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ☐ **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; ☐ **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ☐ **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ☐ **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ☐ **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ☐ **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; ☐ **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

☐ **AMC to Subpart H**

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

   – issued under DASR 21.A.163(b); or

   – issued under DASR 21.A.130 and validated by the Authority; or

   – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

   – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

   – a weight and balance report with a loading schedule;

   – the flight manual and any other manuals required by the Authority of the State of registry;

   – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

   – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451.☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART K - PARTS AND APPLIANCES

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

   i. The materials and processes adequately conform to the specifications for the proposed type design;

   ii. The parts of the products adequately conform to the drawings in the proposed type design;

   iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; **GM1** **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART M - REPAIRS

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; **GM1** **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: **GM** **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); **GM1** **GM2** **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. **AMC**

(b) Each application for approval of the flight conditions shall include: **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). **AMC**

21.A.710 - Approval of flight conditions

GM

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.1 - General

☐ **GM**

(a) When reference is given to ‘design organisation’ the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) ‘Authority’ shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

Superseded

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.97 - Requirements for approval of a major change

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; ☐ **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ☐ **GM1** ☐ **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. ☐ **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ☐ **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; ☐ **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ☐ **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ☐ **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ☐ **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ☐ **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; ☐ **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

☐ **AMC to Subpart H**

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. **AMC**

21.A.257 - Investigations

GM

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451.☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART P - MILITARY PERMIT TO FLY

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; ☐ **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ☐ **GM1** ☐ **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. ☐ **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ☐ **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; ☐ **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ☐ **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ☐ **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ☐ **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ☐ **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. ☐ **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ☐ **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; ☐ **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ☐ **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ☐ **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; ☐ **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. ☐ **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

AMC to Subpart H

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.257 - Investigations

☐ **GM**

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451.☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.1 - General

GM

(a) When reference is given to 'design organisation' the following shall apply:

1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.

2. By way of exception from point 1, an organisation whose principal place of business is in a non-participating Member State, or where a participating Member State (pMS) has not yet transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a certificate or similar approval issued by an authority of that State for the product, part and appliance for which it applies, provided:

   i. that State is providing oversight as State of Design; and

   ii. through Recognition (EMAD–R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.

(b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.

(c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

2. The Authority in charge of the production / design organisation approval:

   i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or

   ii. For a national programme, the Military Aviation Authority of this Nation/State,

3. The Authority in charge to issue the military permit to fly

4. The registration Authority in charge to issue the Certificate of Airworthiness; or

Superseded

5. For unregistered aircraft, the Authority which prescribed the identification marks.

(d) 'Applicant' shall be:

1. The contractor which should comply with this DASR; or

2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.

3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.

(e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

(f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)

(g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).

(h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).

(i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

(j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.

(k) "Operational Suitability Data (OSD)" means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:

i. the minimum syllabus of pilot type rating training, including determination of type rating;

ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

iv. determination of type or variant for cabin crew and type specific data for cabin crew;

v. the master minimum equipment list.

Superseded

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

This Section establishes general provisions governing the rights and obligations of the applicant for, and holder of, any certificate issued or to be issued in accordance with this Section. ☐ **AMC**

21.A.2 - Undertaking by another organisation than the applicant for, or holder of, a certificate

The actions and obligations required to be undertaken by the holder of, or applicant for, a certificate for a product, part or appliance under this Section may be undertaken on its behalf by any other person or organisation, provided the holder of, or applicant for, that certificate can show that it has made an agreement with the other person or organisation such as to ensure that the holder's obligations are and will be properly discharged. ☐ **AMC**

21.A.3A - Failures, malfunctions and defects

(a) System for Collection, Investigation and Analysis of Data. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **GM**

The holder of a type certificate, restricted type certificate, supplemental type certificate, Australian Military Technical Standard Order (AUSMTSO) authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR shall have a system for collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the airworthiness of the product, part or appliance covered by the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR. Information about this system shall be made available to all known operators of the product, part or appliance and, on request, to any person authorised under other associated DASR.

(b) Reporting to the Authority. ☐ **GM** ☐ **GM1**

1. The holder of a type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, shall report to the issuing / approving Authority any failure, malfunction, defect or other occurrence of which it is aware related to a product, part or appliance covered by the type certificate, restricted type certificate, supplemental type certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, and which has resulted in or may result in an unsafe condition.

2. These reports shall be made in a form and manner established by the Authority, as soon as practicable and in any case dispatched not later than 72 hours after the identification of the possible unsafe condition, unless exceptional circumstances prevent this. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under DASR 21.A.129(f)(2) or DASR 21.A.165(f)(2) results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate, shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

2. If the Authority finds that an action is required to correct the deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer as appropriate, shall submit the relevant data to the Authority.

21.A.3B - Airworthiness Directives

(a) An Airworthiness Directive means a document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised. ☐ **GM**

(b) The Authority shall issue an airworthiness directive when: ☐ **AMC** ☐ **GM**

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

(c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:

1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ☐ **AMC1** ☐ **AMC2**

2. following the approval by the Authority of the corrective action and/or required inspections referred to under subparagraph (c)1, make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An Airworthiness Directive shall contain at least the following information:

1. an identification of the unsafe condition;

Superseded

2. an identification of the affected aircraft; operating and maintenance associated documentation;

3. the action(s) required;

4. the compliance time for the required action(s); ☐ **GM**

5. the date of entry into force.

21.A.4 - Co-ordination between design and production

☐ **AMC**

Each holder of a type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTSO authorisation, approval of a change to type certificate or approval of a repair design, shall ensure collaboration between the design organisation and the production organisation as necessary to achieve:

(a) The satisfactory coordination of design and production required by DASR 21.A.122, DASR 21.A.130(b)(3) and (b)(4), DASR 21.A.133 or DASR 21.A.165(c)(2) and (c)(3), as appropriate; and

(b) The proper support of the continued airworthiness of the product, part or appliance.

SUBPART B - MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.11 - Scope

This Subpart establishes the procedure for issuing Military Type-Certificates (MTCs) for products and Military Restricted Type-Certificates (MRTCs) for aircraft, and establishes the rights and obligations of the applicants for, and holders of, those certificates.

21.A.13 - Eligibility

Any organisation that has demonstrated, or is in the process of demonstrating, its capability in accordance with DASR 21.A.14 shall be eligible as an applicant for a type-certificate or a restricted type-certificate under the conditions laid down in this Subpart.

21.A.14 - Demonstration of capability

(a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ☐ **AMC** ☐ **GM**

1. Products with simple or limited scope of design.

Superseded

2. Starting phase toward a military design organisation approval or limited duration of design activities.

3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.

4. Reserved.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.44. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.15 - Application

(a) An application for a type-certificate or restricted type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a type-certificate or restricted type-certificate shall include, as a minimum, preliminary descriptive data of the product, the intended use of the product and the kind of operations for which certification is requested. In addition, it shall include, or be supplemented after the initial application, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ☐ **AMC** ☐ **GM** ☐ **GM1**

1. a detailed description of the type design, including all the configurations to be certified;

2. the proposed operating characteristics and limitations;

3. the intended use of the product and the kind of operations for which certification is requested;

4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.17A, 21.A.17B and 21.A.18;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; ☐ **AMC**

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-

Superseded

compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ☐ **AMC** ☐ **GM**

7. a project schedule including major milestones.

(c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ☐ **GM**

(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application, an application supplement for approval of the operational suitability data. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) An application for a type-certificate or restricted type-certificate shall be valid for five years, unless the Authority agrees at the time of application that its product requires a longer time period for the applicant to demonstrate and declare compliance. ☐ **GM**

(f) In the case where a type-certificate or restricted type-certificate has not been issued, or it is evident that it will not be issued, within the time agreed in point (e), the applicant shall apply for an extension of the validity of the application and comply with any changes to the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established and notified by the Authority in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18 for a new date that is in compliance with the time period established under (e). ☐ **GM**

21.A.16A - Airworthiness Codes (AUS)

☐ **AMC** ☐ **GM**

The Authority shall approve the use of airworthiness codes and other detailed specifications, including codes and specifications for airworthiness and environmental protection, that may be used to demonstrate compliance of products, parts and appliances with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 Such codes and specifications shall be sufficiently detailed and specific to indicate to applicants the conditions under which certificates are to be issued, amended or supplemented.

21.A.16B - Special conditions (AUS)

☐ **AMC** ☐ **GM** ☐ **GM1**

(a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:

1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;

2. The intended use of the product is unconventional;

Superseded

3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or

4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

(b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

21.A.17A - Type-certification basis for a type-certificate or restricted type-certificate (AUS)

☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1**

The type-certification basis for a type-certificate or restricted type-certificate shall consist of:

(a) The requirements of the airworthiness code established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless: ☐ **AMC**

1. The applicant chooses to comply, or is required to comply with DASR 21.A.15(f), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or

2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or

3. The Authority accepts or prescribes other means that: ☐ **GM**

   i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4; or

   ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and

(b) Any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

(c) Dedicated airworthiness requirements and means of compliance established to account for military operations that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

☐ **AMC**

The operational suitability data certification basis shall consist of:

(a) the airworthiness codes for operational suitability data established according to DASR 21.A.16A from those applicable to the product at the date of application for that certificate, unless:

Superseded

1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with requirements of the airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis shall include any other requirements of the airworthiness code that are directly related; or

2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

(b) any special condition prescribed by the Authority in accordance with DASR 21.A.16(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

☐ **AMC** ☐ **GM** ☐ **GM1** ☐ **GM2**

(a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in accordance with DASR 21.A.17A, DASR 21.A.17B and 21.A.18, and shall provide the Authority with the means by which such compliance has been demonstrated.

(b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under DASR 21.A.15(b)(6) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ☐ **GM**

(c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ☐ **AMC**

(d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with DASR 21.A.33, and after all flight tests in accordance with DASR 21.A.35, the applicant shall declare that: ☐ **GM**

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as

Superseded

established under DASR 21.A.17A, 21.A.17B and 21.A.18, following the certification programme as accepted by the Authority; and

2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the declaration of compliance shall be made in accordance with DASR 21 Subpart J and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

(a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4 an aircraft restricted type-certificate, the applicant shall: **AMC**

1. demonstrate its capability in accordance DASR 21.A.14; **AMC**

2. comply with DASR 21.A.20

3. demonstrate that the engine and propeller, if installed in the aircraft:

a) have a type-certificate issued in accordance with this DASR; or **GM**

b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.

(b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. **GM**

21.A.31 - Type design

(a) The type design shall consist of:

1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and

4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

Superseded

AMC

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by DASR 21.A.20, the applicant shall have verified:

1. For the test specimen, that:

i. The materials and processes adequately conform to the specifications for the proposed type design;

ii. The parts of the products adequately conform to the drawings in the proposed type design;

iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and

2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.

(c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.

(d) The applicant shall allow the Authority to: GM

1. Review any data and information related to the demonstration of compliance; and

2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.

(e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):

1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and

2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

GM GM1

(a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.

(b) The applicant shall make all flight tests that the Authority finds necessary:

Superseded

1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and

2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ☐ **GM**

(c) Reserved

(d) Reserved

(e) Reserved

(f) The flight tests prescribed in subparagraph (b)(2), shall include:

1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ☐ **GM**

2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ☐ **GM**

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO2 emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with DASR 21.A.18 ☐ **AMC**

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E. ☐ **GM**

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ☐ **AMC** ☐ **GM**

(a) Undertake the obligations laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.55, DASR 21.A.57,DASR 21.A.61 and DASR 21.A.62; and, for this purpose, shall continue to meet the requirements of DASR 21.A.14; ☐ **AMC**

(b) Specify the marking in accordance with DASR 21 Subpart Q; and

(c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ☐ **AMC**

Superseded

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under DASR 21.A.44, and, for this purpose, has demonstrated its ability to qualify under the criteria of DASR 21.A.14.

21.A.51 - Duration and continued validity

(a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.

(c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ☐ **GM**

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ☐ **AMC**

21.A.61 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or

Superseded

other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

☐ **GM**

The holder of the type-certificate or restricted type-certificate shall make available:

(a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any change to the operational suitability data to all known operators of the aircraft; and

(c) on request, the relevant data referred to in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

(a) when intending to hold a military type-certificate in accordance with DASR 21.A.14; and

(b) by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ☐ **AMC** ☐ **AMC1** ☐ **GM**

Superseded

21.A.74 - Application

☐ **AMC**

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by DASR 21.A.77, and the terms of approval requested to be issued under DASR 21.A.80.

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

(a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ☐ **GM**

1. To ensure that the continued airworthiness of the product is carried out in accordance with DASR 21.A.44, DASR 21.A.118A (where applicable) and DASR 21.A.451 (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

   ii. The terms of approval issued under DASR 21.A.80.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ☐ **AMC**

(b) (Reserved)

(c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ☐ **AMC** ☐ **GM**

(d) The organisation shall integrate into a Safety Management System (SMS), in accordance with DASR.SMS. ☐ **AMC**

21.A.77 - Type Continued Airworthiness Exposition

(a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation,

Superseded

the relevant procedures and the products for which the continued airworthiness will be managed. ☐ **AMC** ☐ **GM**

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ☐ **AMC** ☐ **GM**

21.A.78 - Approval Requirements

☐ **GM**

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.77 that, in addition to complying with DASR 21.A.76:

(a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;

(b) There is full and efficient coordination between organisations. ☐ **GM**

21.A.79 - Changes in Continued Airworthiness System

☐ **GM**

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

☐ **GM**

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

☐ **AMC**

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The

Superseded

military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

(a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

(b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

(a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with DASR 21.A.84; or
3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

(a) (Reserved);

(b) (Reserved);

(c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as ‘major’ or ‘minor’;☐ **AMC**

Superseded

2. (Reserved);

3. (Reserved);

4. (Reserved);

5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. (Reserved);

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC**

   i. a modification or repair; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC**

   i. a major modification or repair; or

   ii. revisions to the flight manual; or

   iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

(a) Maintain the TCAE required under DASR 21.A.77 in conformity with the continued airworthiness system; ☐ **AMC**

(b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.

Superseded

(d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with DASR 21.A.87 (c) or (d);

(e) Provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) (Reserved)

(g) (Reserved)

(h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *"The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]"* ☐ **GM**

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

☐ **GM**

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to DASR 21.A.19, all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with DASR 21.A.95 or DASR 21.A.97 as appropriate, and shall be adequately identified. ☐ **GM**

21.A.92 - Eligibility

(a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under DASR 21 Subpart E. ☐ **GM**

(b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

Superseded

AMC

(a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.

(b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: **AMC** **GM** **GM1**

1. a description of the change identifying:

   i. the configuration(s) of the product in the type-certificate upon which the change is to be made;

   ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and

   iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; **GM1** **GM2**

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; **GM**

3. for a change to a type-certificate:

   i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in DASR 21.A.101;

   ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;

   iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and **AMC** **GM**

   iv. a project schedule including major milestones.

(c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with DASR 21.A.101. **GM**

Superseded

AMC

(a) Minor changes to a type-certificate shall be classified and approved by:

1. the Authority; or

2. an approved military design organisation within the scope of its privileges provided for in (1) and (2) of DASR 21.A.263(c),recorded in the terms of approval.

(b) A minor change to a type-certificate shall only be approved: GM

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;

3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and

4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.

(c) By way of exception from (b)(1), airworthiness requirements which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. GM

(d) By way of exception from (a), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.

(e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).

(f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

AMC AMC1

(a) Major changes to a type-certificate shall be classified and approved by:

1. the Authority; or

Superseded

2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of DASR 21.A.263(c) or (2) of DASR 21.A.263(d), as recorded in the terms of approval.

(b) A major change to a type-certificate shall only be approved: ☐ **GM**

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with DASR 21.A.101;

2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with DASR 21.A.101; and

3. when compliance with (1) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change.

(c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ☐ **GM**

(d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

☐ **AMC** ☐ **GM**

(a) A major change to a type-certificate and areas affected by the change shall comply with either the airworthiness requirements applicable to the changed product on the date of the application for the change or airworthiness requirements which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with DASR 21.A.93(c). In addition, the changed product shall comply with the environmental protection requirements established in accordance with DASR 21.A.18.

(b) By way of exception from (a), an earlier amendment to an airworthiness requirement referred to in (a), and to any other airworthiness requirement which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding airworthiness requirements incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable airworthiness requirements incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:

i. The general configuration or the principles of construction are not retained;

Superseded

ii. The assumptions used for certification of the product to be changed do not remain valid.

2. Each area, system, part or appliance that the Authority finds not affected by the change.

3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the airworthiness requirements described in (a) would not contribute materially to the level of safety of the changed product or is impractical.

(c) (Reserved)

(d) If the Authority finds that the airworthiness requirements applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with DASR 21.A.16B, to provide a level of safety equivalent to that established in the airworthiness requirements applicable on the date of the application for the change.

(e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable airworthiness requirement if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:

1. In the case of a type-certificate:

i. equivalent to that of the airworthiness requirements designated under (a) or (b) above; or

ii. compliant with the essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

2. In the case of a restricted type-certificate, adequate with regard to the intended use.

(f) If an applicant chooses to comply with airworthiness requirements set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any other airworthiness requirement which is directly related.

(g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). GM

21.A.105 - Record keeping

(a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the changed product.

Superseded

(b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

(a) Undertake the obligations laid down in DASR 21.A.4, DASR 21.A.105, DASR 21.A.107;

(b) Specify the marking, including AUSMPA (herein 'Australian Military Part Approval') letters, in accordance with DASR 21.A.804.

Superseded

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

☐ **GM**

(a) Any organisation applying for a supplemental type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.

(c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with DASR 21.A.2 with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of DASR 21 Subpart J, including demonstration of compliance with DASR 21.A.118A must be acceptable to the Authority. ☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any organisation applying for a supplemental type-certificate may demonstrate its capability by holding a military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.113 - Application for a Military Supplemental Type-Certificate

(a) An application for a supplemental type-certificate shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) When applying for a supplemental type-certificate, the applicant shall:

i. include in the application the information required by DASR 21.A.93(b);

Superseded

ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(c) DASR 21.A.93(c) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

☐ **AMC** ☐ **GM**

(a) Supplemental type-certificates shall be issued by:

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of DASR 21.A.263(c), as recorded in the terms of approval.

(b) A supplemental type-certificate shall only be issued when; ☐ **AMC**

1. the applicant has demonstrated its capability in accordance with DASR 21.A.112B;

2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with DASR 21.A.101;

3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with DASR 21.A.101;

4. compliance with (2) and (3) has been demonstrated in accordance with DASR 21.A.20, as applicable to the change; and

5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.113(b):

   i. The type-certificate holder has indicated that it has no technical objection to the information submitted under DASR 21.A.93; and

   ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.44 and DASR 21.A.118A.

(c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in DASR 21.A.20(d), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ☐ **GM**

Superseded

(d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of DASR 21.A.118A and for this purpose has demonstrated its ability to qualify under the criteria of DASR 21.A.112B.

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

(a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with DASR 21 Subpart D.

(b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.

(c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

(a) Undertake the obligations: ☐ **AMC**

1. Laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.105, DASR 21.A.119, DASR 21.A.120A and DASR 21.A.120B;

2. Implicit in the collaboration with the type-certificate holder under DASR 21.A.115(b)(5); and for this purpose continue to meet the criteria of DASR 21.A.112B.

(b) Specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804.

21.A.118B - Duration and continued validity

(a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. The holder remaining in compliance with this DASR; and

2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.

(c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access

Superseded

to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the supplemental type-certificate, and furnish copies of these manuals to the Authority, on request. ☐ **AMC**

21.A.120A - Instructions for Continuing Airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.

(b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

☐ **GM**

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

(a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

(b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and

(c) on request, the relevant parts of the changes in (a) and (b) above, to:

Superseded

1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and

2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

☐ **GM**

(a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under DASR 21 Subpart G.

(b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ☐ **GM1** ☐ **GM2**

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ☐ **AMC1** ☐ **AMC2**

(a) It holds or has applied for an approval covering the design of that product, part or appliance; or

(b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

(a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ☐ **GM**

(b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ☐ **GM**

   i. the issuance of a production organisation approval under DASR 21 Section A Subpart G—Military Production Organisation Approval Production, would be inappropriate; or ☐ **GM**

   ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under DASR 21 Section A Subpart G. ☐ **GM**

2. An outline of the information required by DASR 21.A.125A(b). ☐ **GM**

Superseded

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ☐ **GM**

(a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.

(b) having provided a manual that contains: ☐ **GM1** ☐ **GM2**

1. a description of the production inspection system required under paragraph a;

2. a description of the means for making the determinations of the production inspection system; and

3. a description of the tests of DASR 21.A.127 and DASR 21.A.128, and the names of persons authorised for the purpose of DASR 21.A.130(a).

(c) demonstrating that it is able to provide assistance in accordance with DASR 21.A.3A, and DASR 21.A.129(d). ☐ **GM**

21.A.125B - Findings

Refer to GR.60 Oversight and enforcement.

21.A.125C - Duration and continued validity

(a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:

1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or

3. the manufacturer no longer meets the requirements of DASR 21.A.122; or

4. the letter of agreement has been surrendered, revoked, or has expired.

(b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

☐ **GM**

(a) The production inspection system required under DASR 21.A.125A(a) shall provide a means for determining that:

1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ☐ **GM**

Superseded

2. incoming materials, and bought or subcontracted parts, are properly identified; ☐ **GM**

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ☐ **GM1** ☐ **GM2**

4. design changes, including material substitutions, have been approved under DASR Subpart D or DASR Subpart E and controlled before being incorporated in the finished product. ☐ **GM**

(b) The production inspection system required by DASR 21.A.125A(a), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ☐ **GM**

2. materials subject to damage and deterioration are suitably stored and adequately protected; ☐ **GM**

3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ☐ **GM**

4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ☐ **GM**

5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ☐ **GM**

6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ☐ **GM**

21.A.127 - Tests: Aircraft

(a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM**

(b) Each production test procedure shall include at least the following:

1. A check on handling qualities;

2. A check on flight performance (using normal aircraft instrumentation);

3. A check on the proper functioning of all aircraft equipment and systems;

Superseded

4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;

5. A check of the operational characteristics of the aircraft on the ground;

6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ☐ **GM1** ☐ **GM2** ☐ **GM3**

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

(a) make each product, part or appliance available for inspection by the Authority; ☐ **GM**

(b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;

(c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

(d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f) :

1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)(2); ☐ **AMC**

3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or

Superseded

appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

(a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a DASR Form 52 - Military Aircraft Statement of Conformity, for complete aircraft, or a DASR Form 1 - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ☐ **AMC1** ☐ **AMC2**

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with DASR 21.A.127(a);

3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with DASR 21.A.128, and

4. additionally, in the case of envionmental requirements; ☐ **GM**

   i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and

   ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

(c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ☐ **AMC**

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ☐ **AMC**

2. Upon application for the original issue of an aircraft certificate of airworthiness; or

3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.

(d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ☐ **GM**

Superseded

(a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;

(b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

(a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ☐ **GM**

(b) hold or have applied for an approval of that specific design; or ☐ **AMC1** ☐ **AMC2**

(c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information required by DASR 21.A.143 and the terms of approval requested to be issued under DASR 21.A.151. ☐ **GM**

21.A.135 - Issue of Production Organisation Approval

☐ **GM**

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

(a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in DASR 21.A.163. ☐ **GM1** ☐ **GM2**

(b) The quality system shall contain:

1. As applicable within the scope of approval, control procedures for: ☐ **GM**

   i. document issue, approval, or change;

   ii. vendor and subcontractor assessment audit and control; ☐ **AMC1** ☐ **AMC2**

Superseded

iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;

iv. identification and traceability;

v. manufacturing processes;

vi. inspection and testing, including production flight tests;

vii. calibration of tools, jigs, and test equipment;

viii. non-conforming item control;

ix. airworthiness coordination with the applicant for, or holder of, the design approval;

x. records completion and retention;

xi. personnel competence and qualification;

xii. issue of airworthiness release documents;

xiii. handling, storage and packing;

xiv. internal quality audits and resulting corrective actions;

xv. work within the terms of approval performed at any location other than the approved facilities;

xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;

xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in DASR 21.A.145(c)(1) to ensure, as necessary, corrective action. ☐ **GM1** ☐ **GM2**

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.143 - Production Organisation Exposition

☐ **GM**

(a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:

1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;

Superseded

2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);

3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;

4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);

5. a list of certifying staff as referred to in DASR 21.A.145(d);

6. a general description of human resources;

7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;

9. the procedure for the notification of organisational changes to the Authority;

10. the amendment procedure for the production organisation exposition;

11. a description of the quality system and the procedures as required by DASR 21.A.139(b)(1);

12. a list of those outside parties referred to in DASR 21.A.139(a); and

13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: **AMC**

    (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;

    (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;

    (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;

    (iv) a policy for risk and safety management and associated methodologies;

    (v) procedures to identify the instruments and equipment to be carried;

    (vi) a list of documents that need to be produced for flight test.

(b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.

(c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

Superseded

The production organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.143 that:

(a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under DASR 21.A.165. **GM**

(b) with regard to all necessary airworthiness and environmental data:

1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO2 production cut-off requirements, to determine conformity with the applicable design data;

2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and **GM**

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.

(c) with regard to management and staff:

1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in DASR 21.A.143; **GM**

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and **GM**

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.

(d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under DASR 21.A.163 under the scope or terms of approval:

1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; **AMC**

2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; **AMC**

3. certifying staff are provided with evidence of the scope of their authorisation. **AMC**

Superseded

21.A.147 - Changes to the approved production organisation

(a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ☐ **GM**

(b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with DASR 21.A.147. ☐ **AMC**

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.147, a production organisation approval is not transferable. ☐ **GM**

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under DASR 21.A.163. Those terms shall be issued as part of a production organisation approval. ☐ **GM**

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ☐ **AMC**

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ☐ **GM**

21.A.158 - Findings

Refer to GR.60 Oversight and enforcement.

Superseded

21.A.159 - Duration and continued validity

(a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:

1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or

2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.157; or

3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ☐ **GM**

4. the production organisation no longer meets the requirements of; or

5. the certificate has been surrendered or revoked; or

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

☐ **GM**

Pursuant to the terms of approval issued under DASR 21.A.135, the holder of a production organisation approval may:

(a) perform production activities under this DASR;

(b) in the case of complete aircraft and upon presentation of a Statement of Conformity (DASR Form 52 - Military Aircraft Statement of Conformity), under DASR 21.A.174, obtain an aircraft certificate of airworthiness without further showing;

(c) in the case of other products, parts or appliances issue authorised release certificates (DASR Form 1 - Authorised Release Certificate) without further showing; ☐ **AMC** ☐ **AMC2**

(d) maintain a new aircraft that it has produced and issue a certificate of release to service (DASR Form 53 - Military Certificate of Release to Service) in respect of that maintenance; or ☐ **AMC**

(e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with DASR 21.A.711(c) including approval of the flight conditions in accordance with DASR 21.A.710(b). ☐ **AMC** ☐ **GM**

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

(a) ensure that the production organisation exposition furnished in accordance with DASR 21.A.143 and the documents to which it refers, are used as basic working documents within the organisation; ☐ **GM**

Superseded

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or

2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate, to certify conformity to approved design data and condition for safe operation;

3. additionally, in the case of environmental requirements determine that: ☐ **GM**

   i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and

   ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

4. determine that other products, parts or appliances conform to the applicable data before issuing DASR Form 1, as a conformity certificate. ☐ **AMC**

(d) record all details of work carried out; ☐ **GM**

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

(f)

1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;

2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under DASR 21.A.3A(b)2; ☐ **AMC**

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

(g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;

Superseded

(h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; ☐ **GM**

(i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;

(j) where applicable, under the privilege of DASR 21.A.163(e), determine the conditions under which a military permit to fly can be issued; and

(k) where applicable, under the privilege of DASR 21.A.163(e), establish compliance with DASR 21.A.711(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

☐ **AMC to Subpart H**

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

(a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);

(b) restricted certificates of airworthiness shall be issued to aircraft:

1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or

2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

Superseded

(a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:

1. the class of airworthiness certificate applied for;

2. with regard to new aircraft:

   i. a statement of conformity:

      – issued under DASR 21.A.163(b); or

      – issued under DASR 21.A.130 and validated by the Authority; or

      – for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.

   ii. a weight and balance report with a loading schedule;

   iii. the flight manual and any other manuals required by the Authority of the State of registry.

3. with regard to used aircraft: ☐ **AMC**

   i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / DASR M;

   ii. in any other case:

      – a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;

      – a weight and balance report with a loading schedule;

      – the flight manual and any other manuals required by the Authority of the State of registry;

      – historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;

      – a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

4. with regard to Defence Registered crewed hot air balloons:

   i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type

Superseded

ii. the applicant has submitted to DASA the following documents:

- evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
- a copy of the applicable Type Certificate Data Sheet
- a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
- a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
- a copy of the parts catalogue for the aircraft
- a list of all current service documents applicable to the aircraft

iii. evidence of an agreement requiring the type-certificate holder to:

- continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
- continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ☐ **GM**

21.A.177 - Amendment or modification

☐ **GM**

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

☐ **GM**

(a) Where ownership of an aircraft has changed:

Superseded

1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;

2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:

   i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and

   ii. when satisfying DASR 21.A.175.

(b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

☐ **GM**

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

(a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:

1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and

2. the aircraft remaining on the same register;

3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under DASR 21.A.51; and

4. the certificate not being surrendered or revoked by the Authority. ☐ **GM**

(b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with DASR 21 Section A Subpart Q—Identification of Products, Parts and Appliances.

Superseded

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

(a) In accordance with DASR 21.A.14, DASR 21.A.112B, DASR 21.A.432B or DASR 21.A.602B; or

(b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under DASR 21.A.263.

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.243, and the terms of approval requested to be issued under DASR 21.A.251. ☐ **AMC**

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ☐ **GM**

21.A.239 - Design assurance system and Safety Management System

(a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ☐ **GM1** ☐ **GM2**

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and

2. To ensure that its responsibilities are properly discharged in accordance with:

   i. The appropriate provisions of this DASR; and

Superseded

ii. The terms of approval issued under DASR 21.A.251.

3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. **AMC**

(b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. **AMC**

(c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. **GM**

(d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.243 - Handbook (Design Organisation Exposition)

(a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: **AMC1** **AMC2**

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See DASR 21 Section A Subpart P – Military Permit to Fly; **AMC**

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;

4. a policy for risk and safety management and associated methodologies;

5. procedures to identify the instruments and equipment to be carried;

6. a list of documents that need to be produced for flight test.

(b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by DASR 21.A.239(b), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.

(c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.

Superseded

(d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ☐ **AMC** ☐ **GM1** ☐ **GM2**

(e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with DASR 21.A.243 that, in addition to complying with DASR 21.A.239: ☐ **GM1** ☐ **GM2**

(a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;

(b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ☐ **GM**

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of DASR 21.A.247, a design organisation approval is not transferable. ☐ **GM**

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or AUSMTSO authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ☐ **GM1** ☐ **GM2**

Superseded

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. **AMC**

21.A.257 - Investigations

GM

(a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. **GM**

(b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under DASR 21.A.239(b).

21.A.258 - Findings

Refer to GR.60 Oversight and enforcement.

21.A.259 - Duration and continued validity

(a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:

1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with DASR 21.A.257; or
3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

(a) (Reserved);

(b) (Reserved);

Superseded

(c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:

1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ☐ **AMC1** ☐ **AMC2**

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ☐ **AMC1** ☐ **AMC2** ☐ **AMC3**

3. (Reserved);

4. (Reserved);

5. to approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ☐ **AMC1** ☐ **AMC2**

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with DASR 21.A.710(a)(2), except for permits to fly to be issued for the purpose of DASR 21.A.701(a)(15), (16) and (17); ☐ **AMC**

7. to issue a military permit to fly in accordance with DASR 21.A.711(b) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ☐ **AMC** ☐ **GM**

   i. controls the configuration of the aircraft, and

   ii. attests conformity with the design conditions approved for the flight;

8. to approve certain major changes to a type-certificate under Subpart D; and ☐ **AMC1** ☐ **AMC2**

9. to issue certain supplemental type-certificates under Subpart E and approve certain major changes to those certificates. ☐ **AMC1** ☐ **AMC2**

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it is has already been approved by a recognised civil aviation authority: ☐ **AMC** ☐ **AMC1**

   i. a modification; or

   ii. an instruction for continuing airworthiness; or

   iii. revisions to the flight manual; or

   iv. revisions to the maintenance manual or

   v. changes to the approved operational suitability data.

2. To approve the following, when it is has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ☐ **AMC** ☐ **AMC1**

Superseded

i. a major modification; or

ii. revisions to the flight manual; or

iii. revisions to the approved sections of the maintenance manual or

iv. changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

(a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ☐ **AMC**

(b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ☐ **GM**

(c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;

(d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with DASR 21.A.263(c);

(e) provide to the Authority data and information related to required actions under DASR 21.A.3B;

(f) determine, in accordance with DASR 21.A.263(c)(6), the flight conditions under which a military permit to fly can be issued; and

(g) establish, in accordance with DASR 21.A.263(c)(7), compliance with DASR 21.A.711(b) and DASR 21.A.711(e) before issuing a military permit to fly (DASR Form 20b - Military Permit to Fly (Approved Organisation)), for an aircraft.

(h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: “The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]”. ☐ **GM**

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ☐ **GM**

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ☐ **GM**

Superseded

(a) in conjunction with the type-certification procedures of DASR 21 Subpart B, D or E for the product in which it is to be installed; or

(b) where applicable, under the AUSMTSO authorisation procedures of DASR 21 Subpart O; or

(c) in the case of standard parts, in accordance with officially recognised Standards. ☐ **GM**

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by this DASR or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in Subpart O.

21.A.307 - Release of parts and appliances for installation

☐ **AMC**

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

(a) accompanied by an authorised release certificate (DASR Form 1—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,

(b) a standard part, or

(c) (reserved)

(d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

(a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ☐ **GM**

(b) Reserved.

(c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

(d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.

(e) A repair to an AUSMTSO article other than an Auxiliary Power Unit (APU) shall be treated as a change to the AUSMTSO design and shall be processed in accordance with DASR 21.A.611. ☐ **GM**

Superseded

(f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

(a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to DASR 21.A.432B shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.

(b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

(a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with DASR 21 Subpart J.

(b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ☐ **GM**

(c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with DASR 21.A.2 and DASR 21.A.14(c), including demonstration of compliance with DASR 21.A.451.☐ **AMC**

(d) By way of exception from paragraphs (a), (b) and (c), any applicant for a major repair design approval may demonstrate its capability by holding military type-certificate holder organisation (MTCHO) approval, issued by the Authority in accordance with DASR 21 Subpart C.

21.A.432C - Application for a repair design approval

(a) An application for a repair design approval shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ☐ **AMC**

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;

2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;

Superseded

3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation;

5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with DASR 21.A.433(a)(1) and references to related compliance documents;

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **AMC**

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

(a) A repair design shall only be approved: **AMC**

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; **GM**

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and

4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with DASR 21.A.432C(b)(7):

   i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and

   ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with DASR 21.A.451.

(b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

Superseded

21.A.435 - Classification and approval of repair designs

(a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in DASR 21.A.91 for a change to the type-certificate. **GM**

(b) A repair shall be classified and approved by: **GM**

1. the Authority; or

2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of DASR 21.A.263(c), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

(a) under DASR 21 Subpart F; or

(b) by an organisation appropriately approved in accordance with DASR 21 Subpart G; or

(c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

(a) The embodiment of a repair shall be made in accordance with DASR 145, or by a production organisation appropriately approved in accordance with DASR 21 Subpart G, in accordance with the privilege provided for in DASR 21.A.163(d).

(b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. **GM**

21.A.445 - Unrepaired damage

AMC **GM**

(a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or

2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Superseded

Any necessary limitations shall be processed in accordance with the procedures of DASR 21.A.443.

(b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

☐ **AMC** ☐ **AMC1**

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with DASR 21.A.443, justification for classification and evidence of the repair design approval, shall:

(a) be held by the repair design approval holder at the disposal of the Authority; and

(b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

☐ **AMC** ☐ **GM**

(a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

(b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

Superseded

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

(a) Each holder of a major repair design approval shall:

1. undertake the obligations:

i. laid down in DASR 21.A.3A, DASR 21.A.3B, DASR 21.A.4, DASR 21.A.439, DASR 21.A.441, DASR 21.A.443, DASR 21.A.447 and DASR 21.A.449;

ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU AUSMTSO authorisation holder, under DASR 21.A.433(b), as appropriate.

2. specify the marking, including AUSMPA (Australian Military Part Approval) letters, in accordance with DASR 21.A.804(a).

(b) Except for type-certificate holders or APU AUSMTSO authorisation holders for which DASR 21.A.44 applies, the holder of a minor repair design approval shall:

1. undertake the obligations laid down in DASR 21.A.4, DASR 21.A.447 and DASR 21.A.449; and

2. specify the marking, including AUSMPA letters, in accordance with DASR 21.A.804(a).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing Australian Military Technical Standard Order (AUSMTSO) authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. **GM**

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an AUSMTSO article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an AUSMTSO authorisation.

21.A.602B - Demonstration of capability

Any applicant for an AUSMTSO authorisation shall demonstrate its capability as follows:

(a) for production, by holding a production organisation approval, issued in accordance with DASR 21 Subpart G, or through compliance with DASR 21 Subpart F procedures; and

(b) for design:

1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with DASR 21 Subpart J;

Superseded

2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ☐ **AMC**

21.A.603 - Application

(a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ☐ **AMC**

(b) When a series of minor changes in accordance with DASR 21.A.611 is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to AUSMTSO authorisation for an Auxiliary Power Unit (APU):

(a) by way of exception DASR 21.A.603, DASR 21.A.610 and DASR 21.A.615, the following requirements shall apply: DASR 21.A.15, DASR 21.A.16B, DASR 21.A.17A, DASR 21.A.20, DASR 21.A.21, DASR 21.A.31, DASR 21.A.33, DASR 21.A.44,. However except that an AUSMTSO authorisation shall be issued in accordance with DASR 21.A.606 instead of the type-certificate;

(b) by way of exception from from DASR 21.A.611, DASR 21 Subpart D shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of DASR 21 Subpart E shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of Subpart E apply, a separate AUSMTSO authorisation shall be issued instead of a supplemental type-certificate.; and

(c) the requirements of DASR 21 Subpart M shall apply to the approval of repair designs.

21.A.605 - Data requirements

☐ **AMC** ☐ **GM**

(a) The applicant shall submit to the Authority the following documents:

1. a certification programme for the AUSMTSO authorisation, setting out the means to demonstrate compliance with DASR 21.A.606(b); ☐ **AMC**
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;

Superseded

5. the exposition (or a reference to the exposition) referred to in DASR 21.A.143 for the purpose of obtaining an appropriate production organisation approval under DASR 21 Subpart G or the manual (or a reference to the manual) referred to in DASR 21.A.125A(b) for the purpose of manufacturing under DASR 21 Subpart F without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in DASR 21.A.243 for the purpose of obtaining an appropriate design organisation approval under DASR 21 Subpart J;

7. for all other articles, the procedures, or a reference to the procedures, referred to in DASR 21.A.602B(b)(2).

(b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the AUSMTSO authorisation. **GM**

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a AUSMTSO authorisation, the applicant shall:

(a) demonstrate its capability in accordance with DASR 21.A.602B;

(b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with DASR 21.A.610, if any

(c) comply with the requirements of this Subpart; and

(d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. **AMC**

21.A.607 - AUSMTSO authorisation privileges

The holder of an AUSMTSO authorisation is entitled to produce and to mark the article with the appropriate AUSMTSO marking.

21.A.608 - Declaration of Design and Performance (DDP)

AMC

(a) The DDP shall contain at least the following information:

1. information corresponding to DASR 21.A.31(a) and DASR 21.A.31(b), identifying the article and its design and testing standard.

2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.

3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.

4. reference to relevant test reports.

Superseded

5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.

6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.

7. list of deviations accepted in accordance with DASR 21.A.610.

(b) The DDP shall be endorsed with the date and signature of the holder of the AUSMTSO authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an AUSMTSO authorisation under this Subpart shall:

(a) manufacture each article in accordance with DASR 21 Subpart G or Subpart F that ensures that each completed article conforms to its design data and is safe for installation;

(b) prepare and maintain, for each model of each article for which an AUSMTSO authorisation has been issued, a current file of complete technical data and records in accordance with DASR 21.A.613;

(c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;

(d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;

(e) mark each article in accordance with DASR 21.A.807;

(f) comply with DASR 21.A.3A, DASR 21.A.3B and DASR 21.A.4;

(g) continue to meet the certification requirements of DASR 21.A.602B.

21.A.610 - Approval for deviation

(a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.

(b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

GM

(a) The holder of the AUSMTSO authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used

Superseded

to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with DASR 21.A.603(b).

(b) Any design change by the holder of the AUSMTSO authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.

(c) No design change by any organisation, other than the holder of the AUSMTSO authorisation who submitted the statement of compliance for the article, is eligible for approval under this DASR 21 Subpart O unless the organisation seeking the approval applies under DASR 21.A.603 for a separate AUSMTSO authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ☐ **AMC**

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an AUSMTSO authorisation for an article shall allow the Authority to:

(a) witness any tests;

(b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

(a) An AUSMTSO authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when AUSMTSO authorisation was granted are no longer being observed; or
2. the obligations of the holder specified in DASR 21.A.609 are no longer being discharged; or
3. the article has proved to give rise to unacceptable hazards in service; or
4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.

(b) Upon surrender or revocation, the certificate shall be returned to the Authority.

Superseded

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with DASR 21.A.147 and DASR 21.A.247 as applicable, an AUSMTSO authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

GM to Subpart P

21.A.701 - Scope

GM - MPTF

(a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes: **GM - MPTF** **AMC**

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
13. (Reserved)
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
16. (Reserved)

Superseded

17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;

18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.

(b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

☐ **GM**

(a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of DASR 21.A.701 (a)(15) where the applicant shall be the owner.

(b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

☐ **GM**

For the purpose of this Subpart, the 'Authority' shall be:

(a) the Authority of the State of registry; or

(b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

(a) Pursuant to DASR 21.A.703 and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.

(b) Each application for a military permit to fly shall include: ☐ **GM**

1. the purpose(s) of the flight(s), in accordance with DASR 21.A.701;

2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;

3. the flight conditions approved in accordance with DASR 21.A.710.

(c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with DASR 21.A.709.

Superseded

21.A.708 - Flight conditions

Flight conditions include:

(a) the configuration(s) for which the military permit to fly is requested;

(b) any condition or restriction necessary for safe operation of the aircraft, including: ☐ **GM** ☐ **GM1**

1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);

2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;

3. the restrictions regarding carriage of persons other than flight crew;

4. the operating limitations, specific procedures or technical conditions to be met;

5. the specific flight test programme (if applicable);

6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ☐ **GM**

(c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ☐ **GM1** ☐ **GM2** ☐ **GM3**

(d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ☐ **GM**

21.A.709 - Application for approval of flight conditions

(a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ☐ **AMC**

(b) Each application for approval of the flight conditions shall include: ☐ **AMC**

1. the proposed flight conditions;

2. the documentation supporting these conditions; and

3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph DASR 21.A.708(b). ☐ **AMC**

21.A.710 - Approval of flight conditions

☐ **GM**

(a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

1. the Authority; or ☐ **AMC**

Superseded

2. an appropriately approved design organisation, under the privilege of DASR 21.A.263(c)(6).

(b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.

(c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

(a) The Authority shall issue a military permit to fly: ☐ **GM**

1. upon presentation of the data required by DASR 21.A.707;

2. when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710; and

3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under DASR 21.A.708 before flight.

(b) An appropriately approved design organisation may issue a military permit to fly (DASR Form 20b—Military Permit to Fly - Approved Organisation), under the privilege granted under DASR 21.A.263(c)(7), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ☐ **GM**

(d) Reserved

(e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with DASR 21.A.710. ☐ **GM**

(f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.

(g) Upon evidence that any of the conditions specified in DASR 21.A.723(a) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

☐ **GM**

Superseded

(a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with DASR 21.A.710. When relevant, an application shall be made in accordance with DASR 21.A.709.

(b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with DASR 21.A.711.

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

(a) A military permit to fly is not transferable. ☐ **GM**

(b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

(a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:

1. compliance with the conditions and restrictions of DASR 21.A.711(e) associated to the military permit to fly;
2. the military permit to fly not being surrendered or revoked;
3. the aircraft remaining on the same register.

(b) (Reserved)

(c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with DASR 21.A.713.

21.A.727 - Obligations of the holder of a military permit to fly

☐ **AMC** ☐ **GM**

Superseded

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

GM

(a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

(b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

(a) The identification of products shall include the following information:

1. manufacturer's name;
2. product designation;
3. manufacturer's Serial number; and
4. any other information the Authority finds appropriate.

(b) Any person or organisation that manufactures an aircraft or engine under DASR 21 Subpart G or Subpart F shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under DASR 21 Subpart G or Subpart F shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.

(d) (Reserved)

Superseded

21.A.803 - Handling of identification data

(a) No person shall remove, change, or place identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU, without the approval of the Authority.

(b) No person shall remove or install any identification plate referred to in DASR 21.A.801, or in DASR 21.A.807 for an APU, without the approval of the Authority.

(c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:

1. remove, change, or place the identification information referred to in DASR 21.A.801(a) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in DASR 21.A.807(a) on an APU; or

2. remove an identification plate referred to in DASR 21.A.801, or DASR 21.A.807 for an APU, when necessary during maintenance operations.

(d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

(a) Each part or appliance shall be marked permanently and legibly with:

1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and **GM**

2. the part number, as defined in the applicable design data; and

3. the letters AUSMPA (Australian Military Part Approval) for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for AUSMTSO articles.

(b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of DASR 21.A.804, each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

Superseded

21.A.807 - Identification of AUSMTSO articles

(a) Each holder of an AUSMTSO authorisation under DASR 21 Subpart O shall permanently and legibly mark each article with the following information:

1. the name and address of the manufacturer;

2. the name, type, part number or model designation of the article;

3. the serial number or the date of manufacture of the article or both; and

4. the applicable AUSMTSO number.

(b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.

(c) Each person who manufactures an APU under DASR 21 Subpart G or Subpart F shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

Superseded

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

Superseded

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

Superseded

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

Superseded

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

Superseded

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;
2. status of modifications and repairs;
3. status of compliance with the AMP;
4. status of service life limited components; ☐ **AMC** ☐ **AMC1**
5. weight and balance report;
6. list of deferred maintenance;
7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and
2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and
3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and
4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and
2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

Superseded

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

Superseded

(c) Moved to paragraph (a).

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

Superseded

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

M.A.704 - Continuing Airworthiness Management Exposition (CAME)

☐ **AMC**

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. ☐ **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. ☐ **AMC**

Superseded

M.A.706 - Personnel requirements

☐ **AMC**

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). ☐ **AMC**

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

Superseded

ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

iii. formal aeronautical maintenance training; and ☐ **AMC**

iv. a position within the CAMO with appropriate responsibilities.

v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;

2. if required by the pMS: ☐ **GM**

i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and

ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.

3. manage the accomplishment of modifications and repairs;

4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;

Superseded

5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;

6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;

7. ensure that maintenance is only carried out by a DASR 145 AMO;

8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;

9. manage and archive all continuing airworthiness records;

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

Superseded

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/ (M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

Superseded

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

i. working under the quality system of the CAMO; or

ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

Superseded

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;

2. the location of the CAMO;

3. additional locations of the CAMO;

4. the Accountable Manager;

5. any of the persons specified in DASR M.A.706(c);

6. the facilities, procedures, work scope and staff that could affect the approval;

7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

Superseded

M.A.714 - Record-keeping

AMC

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;
2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and
3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

Superseded

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

1. basic details of the maintenance carried out; and
2. the date such maintenance was completed; and
3. the identity of the organisation and/or person issuing the release to service, including:
   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.
4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

Superseded

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and

2. suitable accommodation at the appropriate location for its personnel; and

3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

Superseded

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Superseded

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

Appendix I to DASR AMC M.A.302(4)

Superseded

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART A - GENERAL

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;

2. if required by the pMS: ☐ **GM**

   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and

   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.

3. manage the accomplishment of modifications and repairs;

4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;

5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;

6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;

7. ensure that maintenance is only carried out by a DASR 145 AMO;

8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;

9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART B - ACCOUNTABILITY

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the pMS: ☐ **GM**
   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
3. manage the accomplishment of modifications and repairs;
4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
7. ensure that maintenance is only carried out by a DASR 145 AMO;
8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

   In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART C - CONTINUING AIRWORTHINESS

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the pMS: ☐ **GM**
   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
3. manage the accomplishment of modifications and repairs;
4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
7. ensure that maintenance is only carried out by a DASR 145 AMO;
8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

   In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the pMS: ☐ **GM**
   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
3. manage the accomplishment of modifications and repairs;
4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
7. ensure that maintenance is only carried out by a DASR 145 AMO;
8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the pMS: ☐ **GM**
   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
3. manage the accomplishment of modifications and repairs;
4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
7. ensure that maintenance is only carried out by a DASR 145 AMO;
8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ☐ **GM1** ☐ **GM2** ☐ **GM3**

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in DASR M.A.302.

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

(b) NOT APPLICABLE.

(c) Any organisation performing maintenance shall be responsible for the tasks performed.

(d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ☐ **AMC**

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ☐ **AMC**

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ☐ **AMC**

Superseded

1. be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates; and ☐ **AMC**

2. be approved in accordance with DASR 145 or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ☐ **GM**

3. ensure that paragraph (a) is satisfied.

(i) NOT APPLICABLE

(j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.

(k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/ arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ☐ **AMC**

M.A.202 - Occurrence reporting

(a) Any Operating Organisation accountable in accordance with DASR M.A.201, shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ☐ **AMC** ☐ **GM**

(b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ☐ **AMC** ☐ **GM**

(d) NOT APPLICABLE.

(e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

(a) The continuing airworthiness of the aircraft shall be ensured by:

1. the accomplishment of pre-flight inspections; ☐ **AMC**

2. the rectification in accordance with the data specified in DASR M.A.304 of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ☐ **AMC** ☐ **GM**

Superseded

3. the accomplishment of all maintenance, in accordance with the DASR M.A.302 approved Aircraft Maintenance Programme (AMP); ☐ **AMC**

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ☐ **AMC**

5. the accomplishment of any applicable: ☐ **AMC**

   i. Airworthiness Directive;

   ii. operational directive with a continuing airworthiness impact;

   iii. continued or continuing airworthiness requirements mandated by the MAA;

   iv. measures mandated by the MAA in immediate reaction to a safety problem.

6. the accomplishment of modifications and repairs in accordance with DASR M.A.304;

7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ☐ **AMC**

8. maintenance check flights when necessary.

(b) An aircraft shall not fly if:

1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or

2. the aircraft does not remain in conformity with the type design approved by the MAA; or

3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or

4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or

5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

☐ **AMC**

(a) Maintenance of each aircraft shall be organised in accordance with an AMP. ☐ **GM**

(b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.

(c) NOT APPLICABLE.

(d) The AMP shall establish compliance with: ☐ **AMC**

1. instructions issued by the MAA;

2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.

Superseded

3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ☐ **AMC**

(e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.

(f) The AMP shall include a reliability programme, unless otherwise specified by the MAA. ☐ **GM**

(g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with DASR 21.

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ☐ **AMC**

(a) data approved by the MAA; or

(b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ☐ **GM**

(c) NOT APPLICABLE;

(d) data produced by an organisation accepted by the MAA. ☐ **AMC** ☐ **GM**

M.A.305 - Aircraft continuing airworthiness record system

(a) At the completion of any maintenance, the Certificate of Release to Service required by DASR 145.A.50 shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.

(b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.

(c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system. ☐ **GM**

(d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ☐ **AMC**

Superseded

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;

2. status of modifications and repairs;

3. status of compliance with the AMP;

4. status of service life limited components; ☐ **AMC** ☐ **AMC1**

5. weight and balance report;

6. list of deferred maintenance;

7. symmetry check report (if required).

(e) In addition to the authorised release certificate, DASR Form 1 or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:

1. identification of the component; and

2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and

3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and

4. the current paragraph (d) information applicable to the component.

(f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.

(g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ☐ **AMC** ☐ **GM**

(h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ☐ **AMC**

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and

2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component

Superseded

scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and

4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and

5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and

6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ☐ **AMC**

M.A.306 - Aircraft technical log

(a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ☐ **AMC**

1. information about each flight, necessary to ensure continued flight safety; and

2. the current aircraft Certificate of Release to Service; and

3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and

4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and

5. any necessary guidance instructions on maintenance support arrangements.

(b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ☐ **AMC**

(c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

(a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

(b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the DASR M.A.305 aircraft continuing airworthiness records system, are transferred to that CAMO.

(c) Moved to paragraph (a).

Superseded

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See DASR 145

SUBPART E - COMPONENTS

NOT APPLICABLE – See DASR 145

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

(a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ☐ **AMC**

(b) It shall include the following documents: ☐ **AMC**

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (only if the participating Member State (pMS) requires the CAMO to develop and control the AMP for the aircraft managed); and ☐ **GM**
3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the DASR M.A.708(c) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ☐ **AMC**

M.A.703 - Extent of approval

(a) The approval is indicated on a DASR Form 14, issued by the MAA.

(b) NOT APPLICABLE.

(c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with DASR M.A.704.

Superseded

AMC

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) andM.A.706(i); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i); and
5. a list of the airworthiness review staff referred to in DASR M.A.707; and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and
9. the list of approved AMPs (see DASR M.A. 302); and
10. a list of all contractors/tasked organisations (where applicable); and
11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).

(b) The CAME and its amendments shall be approved by the MAA.

(c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. **GM**

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in DASR M.A.706. **AMC**

M.A.706 - Personnel requirements

AMC

(a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DASR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in DASR M.A.201(h). **AMC**

Superseded

(b) NOT APPLICABLE.

(c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.

(d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).

(e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DASR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ☐ **AMC**

(f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ☐ **AMC**

(g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.

(h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ☐ **GM**

(i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with DASR M.A.711(a)4 and DASR M.A.901(c)2, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ☐ **AMC**

(j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

(k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ☐ **AMC**

M.A.707 - Airworthiness review staff

(a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in DASR M.A. Subpart I: ☐ **AMC**

1. These staff shall have acquired:

   i. at least five years' experience in continuing airworthiness; and

   ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with DASR 66 or an aeronautical degree or a national equivalent; and

   iii. formal aeronautical maintenance training; and ☐ **AMC**

   iv. a position within the CAMO with appropriate responsibilities.

   v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

Superseded

(b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ☐ **AMC**

(c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ☐ **AMC**

(d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.

(e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ☐ **AMC**

M.A.708 - Continuing airworthiness management

☐ **GM** ☐ **GM1**

(a) All continuing airworthiness management shall be carried out according to the prescriptions of DASR M.A. Subpart C—Continuing Airworthiness.

(b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the pMS: ☐ **GM**
   i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
   ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
3. manage the accomplishment of modifications and repairs;
4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
7. ensure that maintenance is only carried out by a DASR 145 AMO;
8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
9. manage and archive all continuing airworthiness records;

Superseded

10. ensure that the weight and balance statement reflects the current status of the aircraft;

11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);

12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.

(c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR M.A.301(a)5,DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ☐ **AMC**

M.A.709 - Documentation

☐ **AMC**

(a) The CAMO shall have access to and use applicable current maintenance data in accordance with DASR 145.A.45, for the performance of continuing airworthiness tasks referred to in DASR M.A.708. This data will be provided by the Operating Organisation/(M)TC holder/any other organisation as defined in DASR 21 as appropriate, subject to an appropriate contract/ tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by DASR M.A.714.

(b) NOT APPLICABLE.

M.A.710 - Airworthiness review

(a) To satisfy the requirement for the airworthiness review of an aircraft referred to in DASR M.A.901, a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ☐ **AMC**

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and

2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and

3. all the maintenance due on the aircraft according to the AMP has been carried out; and ☐ **AMC**

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and

5. all applicable Airworthiness Directives have been applied and properly registered; and

6. all modifications and repairs applied to the aircraft have been registered and are in compliance with DASR M.A.304; and

7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and

Superseded

8. all maintenance has been released in accordance with DASR 145 or DASR M.A.Subpart H; and

9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and

10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and

11. NOT APPLICABLE.

12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

(b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to DASR 66 and authorised in accordance with DASR 145.A.35, shall be assisted by such qualified/authorised personnel. ☐ **AMC**

(c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ☐ **AMC**

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and

3. the aircraft configuration complies with the approved data; and

4. no evident defect can be found that could not have been reasonably expected to be addressed; and

5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.

(d) By way of exception to DASR M.A.901(a), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ☐ **AMC**

(e) The Military Airworthiness Review Certificate (MARC) (DASR Form 15b) or the recommendation for the issue of the MARC (DASR Form 15a) can only be issued: ☐ **AMC** ☐ **GM**

1. by airworthiness review staff appropriately authorised in accordance with DASR M.A.707, on behalf of the CAMO; and

2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.

(f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.

(g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ☐ **AMC**

Superseded

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;

2. NOT APPLICABLE;

3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:

   i. working under the quality system of the CAMO; or

   ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of DASR M.A.901(f), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in DASR M.A.710 for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of DASR M.A.901(c)2; and

2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by pMS according to DASR M.A.708(b)2, develop and control the DASR M.A.302 AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ☐ **AMC**

(b) The quality system shall monitor DASR M.A. Subpart G activities. It shall at least include the following functions: ☐ **AMC** ☐ **GM**

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and

2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and

3. monitoring the continued compliance with the requirements of this DASR.

Superseded

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ☐ **GM**

(f) NOT APPLICABLE.

(g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ☐ **GM**

M.A.713 - Changes to the CAMO

(a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ☐ **AMC**

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in DASR M.A.706(c);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

(b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

☐ **AMC**

(a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by DASR M.A.305 and, if applicable, DASR M.A.306, shall be retained.

(b) If the CAMO has the privilege referred to in DASR M.A.711(b), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in DASR M.A.711(a)4.

(c) Permits to Fly, and all documents relating to their issue as detailed in DASR 21 Subpart P, shall be retained.

(d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.

Superseded

(e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.

(f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.

(g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.

(h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;

2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and

3. the approval not being surrendered or revoked.

(b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to GR.60 Oversight and enforcement.

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

(a) Except for aircraft released to service by a maintenance organisation approved in accordance with DASR 145, the certificate of release to service shall be issued according to this Subpart;

(b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ☐ **AMC**

1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with DASR M.A.201(g)

(c) NOT APPLICABLE

(d) NOT APPLICABLE

(e) NOT APPLICABLE

(f) A certificate of release to service shall contain as a minimum: ☐ **AMC**

Superseded

1. basic details of the maintenance carried out; and

2. the date such maintenance was completed; and

3. the identity of the organisation and/or person issuing the release to service, including:

   i. the approval reference of the DASR M.A.201(g) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.

4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in DASR M.A.801(f).4. ☐ **AMC**

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ☐ **AMC**

M.A.802 - Component certificate of release to service (AUS)

☐ **AMC**

(a) Except for aircraft components released to service in accordance with DASR 21 or DASR 145, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.

(b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with DASR M.A.201(g).

(c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ☐ **AMC**

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ☐ **AMC**

(a) A MARC is issued in accordance with DASR Form 15a, or DASR Form 15b on completion of a satisfactory airworthiness review. The MARC is valid one year. ☐ **AMC**

(b) NOT APPLICABLE.

(c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):

1. issue a MARC in accordance with DASR M.A.710; and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ☐ **AMC**

Superseded

(d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ☐ **AMC**

(e) NOT APPLICABLE.

(f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.

(g) NOT APPLICABLE.

(h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.

(i) NOT APPLICABLE.

(j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: ☐ **AMC**

1. the documentation required by the MAA; and
2. suitable accommodation at the appropriate location for its personnel; and
3. when necessary, the support of personnel appropriately authorised in accordance with DASR 145.A.35;

(k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

(a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
2. the Military Certificate of Airworthiness is suspended or revoked; or
3. the aircraft is removed from the military aircraft register of the MAA; or
4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.

(b) Moved to DASR M.A.301(b).

(c) Upon surrender or revocation, the MARC shall be returned to the MAA.

Superseded

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

(a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding IAW GR.60, and: ☐ **GM**

1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in DASR M.A.301(b), has been corrected. ☐ **AMC**

(b) NOT APPLICABLE

(c) NOT APPLICABLE

(d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with DASR M.A.905(a)1.

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to AMC M.A.201(k).

Appendix II - Authorised Release Certificate DASR Form 1

DASR Form 1 is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

DASR Forms 15a and 15b are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

DASR Form 14 is contained in the DASR Forms book.

Superseded

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

☐ **Appendix I to DASR AMC M.A.302(4)**

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

☐ **Appendix II to DASR AMC M.A.201(h)1** .

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to AMC M.A.704

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Superseded

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

☐ **Appendix XI to DASR AMC M.A.708(c)**

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

☐ **Appendix XIV to AMC M.A.302(d)(3)**

Superseded

DASR M Appendixes

DASR 145 - Requirements for Maintenance Organisations

SECTION A

145.A.10 - Scope

This Section establishes the requirements to be met by a maintenance organisation to qualify for the issue or continuation of an approval for the maintenance of aircraft and components. **AMC**

145.A.15 - Application

An application for the issue or change of an approval shall be made to the Military Aviation Authority (MAA) in a form and manner established by such authority. **AMC**

145.A.20 - Terms of approval

The maintenance organisation shall specify the scope of work deemed to constitute approval in its Maintenance Organisation Exposition (MOE)(**Appendix** II to this DASR contains a table of all classes and ratings). **AMC**

145.A.25 - Facility requirements

The maintenance organisation shall ensure that:

(a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur. **AMC**

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;

2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.

(b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards. **AMC**

(c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment shall be such that the effectiveness of personnel is not impaired: **AMC**

Superseded

1. Temperatures shall be maintained such that personnel can carry out required tasks without undue discomfort.

2. Dust and any other airborne contamination shall be kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.

3. Lighting shall be such as to ensure each inspection and maintenance task can be carried out in an effective manner.

4. Noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.

5. Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions shall be observed. Specific conditions are identified in the maintenance data.

6. The working environment for line maintenance shall be such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

(d) Secure storage facilities shall be provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage shall be in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel. ☐ **AMC**

145.A.30 - Personnel requirements

☐ **AMC**

(a) The maintenance organisation shall appoint an Accountable Manager who has corporate authority for ensuring that all maintenance can be carried out to the standard required by DASR 145. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish maintenance in accordance with DASR 145.A.65(b) to support the maintenance organisation approval.

2. Establish and promote the safety and quality policy specified in DASR 145.A.65(a).

3. Demonstrate a basic understanding of this DASR.

(b) The maintenance organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the maintenance organisation complies with this DASR. Such person(s) shall ultimately be responsible to the Accountable Manager. ☐ **AMC**

Superseded

1. The person or persons nominated shall represent the maintenance management structure of the maintenance organisation and be responsible for all functions specified in this DASR.

2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by the MAA.

3. The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this DASR. ☐ **AMC**

4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.

(c) The Accountable Manager under paragraph (a) shall appoint a person with responsibility for monitoring the quality system, including the associated feedback system as required by DASR 145.A.65(c). The appointed person shall have direct access to the Accountable Manager to ensure that the Accountable Manager is kept properly informed on quality and compliance matters. ☐ **AMC**

(d) The maintenance organisation shall have a maintenance person-hour plan showing that the maintenance organisation has sufficient competent staff to plan, perform, supervise, inspect and quality monitor the maintenance organisation in accordance with the approval. In addition the maintenance organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period. ☐ **AMC**

(e) The maintenance organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard defined through the MOE and approved by the MAA. In addition to the necessary expertise related to the job function, competence shall include an understanding of the application of human factors and human performance issues appropriate to that person's function in the maintenance organisation. ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **AMC4** ☐ **GM1** ☐ **GM2** ☐ **GM3**

'Human factors' means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

'Human performance' means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

(f) The maintenance organisation shall ensure that personnel who carry out and/or control a non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the MAA. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **GM**

1. By way of exception to paragraph (f), a maintenance organisation may authorise those personnel specified in paragraphs (g) and (h)(1), qualified in Category B1 in accordance with DASR 66, to carry out and/or control colour contrast dye penetrant inspections/visible dye penetrant inspections which are to be detailed in the MOE.

Superseded

(g) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate Military Aircraft Type Rated certifying staff, qualified as category B1, B2 in accordance with DASR 66 and DASR 145.A.35. ☐ **AMC**

In addition such maintenance organisations may also use appropriately task trained certifying staff holding the privileges described in DASR 66.A.20(a)(1) or DASR 66.A.20(a)3(ii) and qualified in accordance with DASR 66 and DASR 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for Category B1, B2 certifying staff as appropriate.

(h) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall: ☐ **AMC**

1. In the case of base maintenance of aircraft, have appropriate Military Aircraft Type Rated certifying staff qualified as Category C in accordance with DASR 66 and DASR 145.A.35. In addition the maintenance organisation shall have sufficient Military Aircraft Type Rated staff qualified as Category B1 or B2 as appropriate in accordance with DASR 66 and DASR 145.A.35 to support the category C staff.

   i. Category B1 and B2 support staff shall ensure that all relevant maintenance tasks have been carried out to the required standard before the Category C certifying staff issues the Certificate of Release to Service (CRS) for aircraft.

   ii. The maintenance organisation shall maintain a register of any such B1 and B2 support staff.

   iii. The Category C certifying staff shall ensure that compliance with paragraph (i) has been met and that all work has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the appropriate Continuing Airworthiness Management Organisation (CAMO) to defer such work to another specified check or time limit.

2. NOT APPLICABLE

(i) Component certifying staff shall be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE.

(j) By way of exception to paragraphs (g) and (h), in relation to the obligation to comply with DASR 66 the maintenance organisation may use certifying staff qualified in accordance with the following provisions:

1. NOT APPLICABLE

2. NOT APPLICABLE

3. For a repetitive pre-flight Airworthiness Directive (AD) which specifically states that the flight crew may carry out such AD, the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held. However, the maintenance organisation shall ensure that sufficient practical

Superseded

training has been carried out to ensure that such aircraft commander and/or flight engineer can accomplish the AD to the required standard.

4. In the case of aircraft operating away from a supported location the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held subject to being satisfied that sufficient practical training has been carried out to ensure that the aircraft commander and/or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in a MOE procedure. ☐ **AMC** ☐ **GM**

5. In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation: ☐ **AMC**

   i. to one of its employees holding equivalent authorisations on other aircraft types of similar technology, construction and systems; or ☐ **AMC**

   ii. to any person with not less than five years maintenance experience and holding a valid Military Aircraft Maintenance Licence (MAML) rated for the aircraft, provided there is no maintenance organisation appropriately approved under DASR 145 at that location and the supporting maintenance organisation obtains and holds on file evidence of the experience and the MAML of that person. ☐ **AMC**

   All such cases as specified in this subparagraph shall be reported to the MAA within seven days of the issuance of such certification authorisation. The maintenance organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved maintenance organisation.

(k) To certify on-aircraft maintenance performed on armament, rescue and escape systems and other military-specific systems, any maintenance organisation maintaining aircraft shall have sufficient staff possessing the Category A, B1 or B2 MAML with the appropriate extensions.

145.A.35 - Certifying staff and support staff

(a) In addition to the appropriate requirements of DASR 145.A.30(g) and (h), the maintenance organisation shall ensure that certifying and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of the certification authorisation. ☐ **AMC**

   i. 'Support staff' means those staff holding a DASR 66 MAML in Category B1 and/or B2 with the appropriate extensions and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

   ii. 'Relevant aircraft and/or components', means those aircraft or components specified in the particular certification authorisation.

   iii. 'Certification authorisation' means the authorisation issued to certifying staff by the Approved Maintenance Organisation (AMO) and which specifies the fact that they

Superseded

may sign CRSs within the limitations stated in such authorisation on behalf of the AMO.

(b) Excepting those cases listed in DASR 145.A.30(j) and DASR 66.A.20(a)3(ii) the maintenance organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any Military Aircraft Type Rating endorsed on the MAML, subject to the MAML remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with DASR 66. **AMC** **AMC1**

The maintenance organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of DASR 145 and DASR 66. In granting the certification authorisation the maintenance organisation needs to be satisfied that the person holds a valid and applicable DASR 66 MAML and shall confirm such fact with their MAA.

(c) The maintenance organisation shall ensure that all certifying staff and support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period. **AMC1** **AMC2**

For the purpose of this paragraph 'involved in actual relevant aircraft or component maintenance' means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

(d) The maintenance organisation shall ensure that all certifying staff and support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, maintenance organisation procedures and human factor issues. **AMC**

(e) The maintenance organisation shall establish a programme for continuation training for certifying staff and support staff, including a procedure to ensure compliance with the relevant paragraphs of DASR 145.A.35 as the basis for issuing certification authorisations under this DASR to certifying staff, and a procedure to ensure compliance with DASR 66. **AMC**

(f) Except where any of the unforeseen cases of DASR 145.A.30(j)(5) apply, the maintenance organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the MOE prior to the issue or re-issue of a certification authorisation under this DASR. **AMC**

(g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (c) have been fulfilled by the certifying staff, the maintenance organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable, paragraph (c).

(h) The certification authorisation shall be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, the maintenance organisation shall make a code translation readily available.

Superseded

'Authorised person' means the officials of the MAA.

(i) The maintenance organisation shall nominate an individual who shall remain responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the MOE.

(j) The maintenance organisation shall maintain a record of all certifying staff and support staff which shall contain: ☐ **AMC**

1. Details of any MAML held under DASR 66; and

2. All relevant training completed; and

3. The scope of the certification authorisations issued, where relevant; and

4. Particulars of staff with limited or one-off certification authorisations.

The maintenance organisation shall retain the record for at least three years after the certifying staff or support staff have ceased employment with the maintenance organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish certifying staff and support staff with a copy of their record on leaving the maintenance organisation. ☐ **GM**

The certifying staff and support staff shall be given access on request to their personal records as detailed above.

(k) The maintenance organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.

(l) Certifying staff shall produce their certification authorisation to any authorised person within 72 hours.

(m) The minimum age for certifying staff and support staff shall be 21 years. By exception, for minor scheduled line maintenance and simple defect rectification, using privileges described in DASR 66.A.20(a)(1) or DASR 66.A.20(a)3(ii), the minimum age for certifying staff shall be 18 years.

(n) The holder of a Category A MAML may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant Category A aircraft task training carried out by an organisation appropriately approved in accordance with DASR 145 or DASR 147. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the AMO or DASR 147 MTO. ☐ **AMC**

(o) The holder of a Category B2 MAML may only exercise the certification privileges described in DASR 66.A.20(a)(3)(ii) following the satisfactory completion of: ☐ **AMC** ☐ **GM**

i. the relevant Category A aircraft task training; and

ii. 6 months of documented practical experience covering the scope of the authorisation that will be issued.

The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be

Superseded

demonstrated by an examination or by workplace assessment. Task training and examination/ assessment shall be carried out by the AMO issuing the certifying staff authorisation. The practical experience shall be also obtained within the same AMO unless approved otherwise by the MAA.

145.A.40 - Equipment, tools and material

(a) The maintenance organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work. ☐ **AMC**

1. Where the manufacturer specifies a particular tool or equipment, the maintenance organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by the MAA via procedures specified in the MOE. ☐ **GM**

2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in the MOE.

3. A maintenance organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.

(b) The maintenance organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the maintenance organisation ☐ **AMC**

145.A.42 - Acceptance of components

(a) All components shall be classified and appropriately segregated into the following categories: ☐ **AMC**

1. Components which are in a satisfactory condition, released on a DASR Form 1 or equivalent and marked in accordance with DASR 21 Section A Subpart Q.

2. Unserviceable components which shall be maintained in accordance with this section. A component shall be considered unserviceable in any one of the following circumstances: ☐ **AMC**

   i. expiry of the service life limit as defined in the Aircraft Maintenance Programme (AMP);

   ii. non-compliance with the applicable ADs and other continued or continuing airworthiness requirement mandated by the MAA;

   iii. absence of the necessary information to determine the airworthiness status or eligibility for installation;

   iv. evidence of defects or malfunctions;

   v. involvement in an incident or accident likely to affect its serviceability.

Superseded

Unserviceable components shall be identified and stored in a secure location under the control of a maintenance organisation until a decision is made on the future status of such component.

3. Unsalvageable components which are classified in accordance with DASR 145.A.42(d). A maintenance organisation in consultation with the CAMO/Operating Organisation shall, in the case of unsalvageable components: ☐ **AMC**

   i. retain such components in a secure location under the control of the maintenance organisation until a decision is made on the future status of such component; or ☐ **AMC**

   ii. arrange for the components to be mutilated in a manner that ensures they are beyond economic salvage or repair before relinquishing responsibility for such components. By way of exception, a CAMO/Operating Organisation may transfer responsibility of components classified as unsalvageable to an organisation for training or research without mutilation. ☐ **AMC**

4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data. These parts shall be accompanied by a manufacturer's declaration of conformity traceable to the applicable standard. ☐ **AMC**

5. Material both raw and consumable used in the course of maintenance when the maintenance organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement plus both the manufacturing and supplier source. ☐ **AMC**

6. NOT APPLICABLE.

(b) Prior to installation of a component, the maintenance organisation shall ensure that the particular component is eligible to be fitted when different modification and/or AD standards may be applicable. ☐ **AMC**

(c) The maintenance organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, or other facilities if this is approved by the MAA, provided procedures are identified in the MOE. ☐ **AMC**

(d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to DASR 21. ☐ **AMC** ☐ **GM**

(e) NOT APPLICABLE.

145.A.45 - Maintenance data

(a) The maintenance organisation shall have access to and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. 'Applicable' means relevant to any aircraft, component or process specified in the Maintenance Organisation Approval Schedule and in any associated capability list.

Superseded

In the case of maintenance data provided by a CAMO/Operating Organisation, the maintenance organisation shall have access to such data when the work is in progress, with the exception of the need to comply with DASR 145.A.55(c).

(b) For the purposes of DASR 145, applicable maintenance data shall be any of the following: **AMC**

1. Any applicable requirement, procedure, operational directive or information issued by or provided by the MAA;

2. Any applicable AD issued by the MAA;

3. Instructions for Continuing Airworthiness, issued by (Military) Type Certificate (MTC) holders, (Military) Supplementary Type Certificate (MSTC) holders, any other organisation required to publish such data by DASR 21 and in the case of aircraft or components from third countries the airworthiness data mandated by the Authority responsible for the oversight of the aircraft or component and accepted by the MAA;

4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by the MAA as a good standard for maintenance;

5. Any applicable data issued in accordance with paragraph (d).

(c) The maintenance organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data. **AMC**

(d) The maintenance organisation may only modify maintenance instructions in accordance with a procedure specified in the MOE. With respect to those changes, the maintenance organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the MTC holder/MSTC holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications. **AMC**

(e) The maintenance organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the maintenance organisation. In addition, the maintenance organisation shall either transcribe accurately the maintenance data contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task. **AMC** **GM**

Where the maintenance organisation provides a maintenance service to an Operating Organisation/CAMO who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the maintenance organisation shall establish a procedure to ensure correct completion of the Operating Organisation's/CAMO's work cards or worksheets.

Superseded

(f) The maintenance organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel. ☐ **AMC**

(g) The maintenance organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of maintenance data controlled and provided by the Operating Organisation/CAMO, the maintenance organisation shall be able to show that either it has written confirmation from the Operating Organisation/CAMO that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the Operating Organisation's/CAMO's maintenance data amendment list. ☐ **AMC**

145.A.47 - Maintenance planning

(a) The maintenance organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work. ☐ **AMC**

(b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations. ☐ **AMC**

(c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated between outgoing and incoming personnel. ☐ **AMC**

145.A.48 - Performance of maintenance

(a) All maintenance shall be performed by qualified personnel, following the methods, techniques, standards, and instructions specified in the DASR 145.A.45 maintenance data.

(b) An independent inspection shall be carried out after any flight safety sensitive maintenance task unless otherwise specified in this DASR or agreed by the MAA. ☐ **AMC**

(c) Only the authorised certifying staff according to DASR 145.A.35 and in consultation with the CAMO as necessary, can decide, using DASR 145.A.45 maintenance data, whether an aircraft defect hazards seriously the flight safety and therefore decide when and which rectification action shall be taken before further flight and which defect rectification can be deferred. However, this does not apply when: ☐ **AMC**

1. the approved Minimum Equipment List as mandated by the MAA is used; or
2. aircraft defects are defined as being acceptable by the MAA.

(d) After completion of all maintenance, a general verification shall be carried out to ensure the aircraft or component is clear of all tools, equipment, and any other extraneous parts and material, and that all access panels removed have been refitted.

145.A.50 - Certification of maintenance

(a) A CRS for aircraft and a CRS for components shall be issued by appropriately authorised certifying staff on behalf of the AMO when it has been verified that all maintenance ordered/ tasked has been properly carried out in accordance with the procedures specified in DASR

Superseded

145.A.70, taking into account the availability and use of the maintenance data specified in DASR 145.A.45 and that there are no non-compliances which are known to endanger flight safety. ☐ **AMC**

(b) A CRS for aircraft shall be issued before flight at the completion of any maintenance. ☐ **AMC**

(c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the Operating Organisation/CAMO for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the Operating Organisation/ CAMO declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.

(d) A CRS for components shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate or airworthiness approval tag identified as DASR Form 1 constitutes the component CRS. When an AMO maintains a component for its own use, a DASR Form 1 may not be necessary depending upon the AMO's internal release procedures defined in the MOE. ☐ **AMC1** ☐ **AMC2**

(e) By way of exception to paragraph (a), when the AMO is unable to complete all maintenance ordered/tasked, it may issue a CRS within the approved aircraft limitations. The AMO shall enter such fact in the aircraft CRS before the issue of such certificate. Details of any deferred maintenance are to be entered in the aircraft technical log by appropriately approved certifying staff. ☐ **AMC**

(f) By way of exception to paragraphs (a) and DASR 145.A.42 when an aircraft is grounded at a location other than the Main Operation Base (MOB) due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with another release certificate, subject to CAMO approval, which is in compliance with all the applicable technical and operational requirements. The fitment of such components shall be noted in the aircraft documentation, with a provision for the component to be removed at a time specified by the CAMO, unless an appropriate release certificate has been obtained in the meantime under paragraph (a) and DASR 145.A.42. ☐ **AMC**

145.A.55 - Maintenance records

(a) The maintenance organisation shall record all details of maintenance work carried out. As a minimum, the AMO shall retain records necessary to prove that all requirements have been met for issuance of the CRS, including all release documents. ☐ **GM**

(b) The AMO shall provide a copy of each CRS to the CAMO, together with a copy of any specific repair/modification data used for repairs/modifications carried out.

(c) The AMO shall retain a copy of all detailed maintenance records and any associated maintenance data for three years from the date the aircraft or component to which the work relates was released from the AMO. ☐ **AMC** ☐ **GM**

1. Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period. ☐ **GM**

Superseded

2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.

3. Where an AMO terminates its operation, all retained maintenance records covering the last three years shall be distributed to the CAMO responsible for the respective aircraft or component or shall be stored as specified by the MAA. ☐ **GM**

145.A.60 - Occurrence reporting

(a) The maintenance organisation shall report to the MAA and all further addressees as required by national regulations any condition of the aircraft or component identified by the maintenance organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety. ☐ **GM**

(b) The maintenance organisation shall establish an internal occurrence reporting system as detailed in the MOE to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the maintenance organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) The maintenance organisation shall make such reports in a form and manner established by the MAA, and ensure that they contain all pertinent information about the condition and evaluation results known to the maintenance organisation. ☐ **GM**

(d) The maintenance organisation shall report to the CAMO/Operating Organisation any such condition affecting the aircraft or component.

(e) The maintenance organisation shall produce and submit such reports within predefined MAA timeframes, but in any case within 72 hours of the maintenance organisation identifying the condition to which the report relates.

145.A.65 - Safety and quality policy, maintenance procedures, quality system and safety management system

(a) The maintenance organisation shall establish a safety and quality policy for the organisation to be included in the MOE under DASR 145.A.70. ☐ **AMC**

(b) The maintenance organisation shall establish procedures agreed by the MAA taking into account human factors and human performance to ensure good maintenance practices and compliance with DASR 145 which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with DASR 145.A.50. ☐ **AMC**

1. The maintenance procedures under this paragraph apply to DASR 145.A.25 to DASR 145.A.95.

2. The maintenance procedures established or to be established by the maintenance organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the maintenance organisation intends to work. ☐ **AMC**

Superseded

3. With regard to aircraft line and base maintenance, the maintenance organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the maintenance organisation's work card or worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks. ☐ **AMC** ☐ **GM**

4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data specified in DASR M.A304.

(c) The maintenance organisation shall establish a quality system that includes the following:

1. Independent audits in order to monitor compliance with required aircraft/aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/aircraft components; and ☐ **AMC** ☐ **GM**

2. A quality feedback reporting system to the person or group of persons specified in DASR 145.A.30(b) and ultimately to the Accountable Manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph (1). ☐ **AMC**

(d) The maintenance organisation shall ensure that its personnel have access to quality system documentation and are knowledgeable of procedures relevant to their function.

(e) Where an organisation has several DASR approvals, the quality systems may be combined.

(f) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR SMS.

145.A.70 - Maintenance Organisation Exposition (MOE)

(a) 'Maintenance Organisation Exposition' means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the maintenance organisation intends to comply with DASR 145. The maintenance organisation shall provide the MAA with a MOE containing the following information: ☐ **AMC** ☐ **GM**

1. A statement signed by the Accountable Manager confirming that the MOE and any referenced associated manuals define the maintenance organisation's compliance with DASR 145 and shall be complied with at all times. When the Accountable Manager is neither the Chief Executive Officer nor senior military commander of the maintenance organisation then one of the latter shall countersign the statement; and

2. The maintenance organisation's safety and quality policy as specified by DASR 145.A.65; and

3. The title(s) and name(s) of the persons nominated under DASR 145.A.30(b); ☐ **GM** and

Superseded

4. The duties and responsibilities of the persons nominated under DASR 145.A.30(b), including matters on which they may deal directly with the MAA on behalf of the maintenance organisation; and

5. An organisation chart showing associated chains of responsibility between the persons nominated under DASR 145.A.30(b); and

6. A list of certifying staff and support staff; and

7. A general description of human resources; and

8. A general description of the facilities located at each address specified in the maintenance organisation's approval certificate; and

9. A specification of the maintenance organisation's scope of work relevant to the extent of approval; and

10. The notification procedure of DASR 145.A.85 for organisation changes; and

11. The MOE amendment procedure; and

12. The procedures and quality system established by the maintenance organisation under DASR 145.A.25 to DASR 145.A.90; and

13. A list of Operating Organisations and CAMOs to which the maintenance organisation provides an aircraft maintenance service; and

14. A list of contracted/tasked organisations, where applicable, as specified in DASR 145.A.75(b); and

15. A list of line stations, where applicable, as specified in DASR 145.A.75(d); and

16. A list of contracted/tasked organisations operating under their own DASR approval, where applicable.

(b) The MOE shall be amended as necessary to remain an up-to-date description of the maintenance organisation. The MOE and any subsequent amendment shall be approved by MAA.

(c) Notwithstanding paragraph (b) minor amendments to the MOE may be approved through a MOE procedure (hereinafter called indirect approval).

(d) Where a maintenance organisation has an extant EASA Part 145 approval, those parts of the organisation's EASA Part 145 exposition that are equally applicable to satisfy the DASR 145 requirements shall generally be accepted by the MAA as equivalent in respect of the DASR 145 MOE. In this case it is permissible that only those requirements that are military specific need be addressed in the DASR 145 MOE; those requirements covered by read-across of the sections of the EASA exposition document shall be identified and the EASA document clause reference quoted. ☐ **GM**

(e) Paragraph moved to DASR 145.A.65(d).

145.A.75 - Privileges of the AMO

In accordance with the MOE, the AMO shall be entitled to carry out the following tasks:

Superseded

(a) Maintain any aircraft and/or component listed on its approval certificate at the locations identified in the approval certificate and in the MOE;

(b) Arrange for the maintenance of any aircraft or component, listed on its approval certificate, to be carried out by another maintenance organisation that is working under the quality system of the AMO. This refers to work being carried out by a maintenance organisation not itself appropriately approved to carry out such maintenance under this DASR and is limited to the work scope permitted under DASR 145.A.65(b) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module. The AMO that contracts/tasks such work retains responsibility for all these maintenance activities irrespective of who is undertaking them. All such maintenance organisations shall be listed in the MOE; ☐ **AMC**

(c) Maintain any aircraft or any component listed on its approval certificate at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the MOE;

(d) Maintain any aircraft and/or component listed on its approval certificate at a location identified as a line maintenance location capable of supporting minor maintenance and only if the MOE both permits such activity and lists such locations;

(e) Issue CRSs in respect of completion of maintenance in accordance with DASR 145.A.50.

145.A.80 - Limitations on the AMO

(a) The AMO shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available. ☐ **AMC**

145.A.85 - Changes to the AMO

(a) The AMO shall notify the MAA of any proposal to carry out any of the following changes before such changes take place to enable the MAA to determine continued compliance with DASR 145 and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity. ☐ **AMC**

1. The name of the AMO;
2. The main location of the AMO;
3. Additional locations of the AMO;
4. The Accountable Manager and all appointed deputies;
5. Any of the persons nominated under DASR 145.A.30(b) and their appointed deputies;
6. The facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval;
7. The ownership of the AMO or its parent company.

Superseded

145.A.90 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The AMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings; and

2. The MAA being granted access to the AMO to determine continued compliance with this DASR; and

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the MAA.

145.A.95 - AMO Findings by the MAA

Refer to GR.60 Oversight and enforcement.

DASR 145 Appendixes

Appendix II

Appendix II to DASR 145.A.20 - Class and Rating System to be used for the Approval of Maintenance Organisations

Appendix IV

Appendix IV to DASR AMC3 145.A.30(e)

Appendix V

Appendix V to DASR AMC 145.A.70 - Maintenance Organisation Exposition

Superseded

DASR 145 Appendixes

SECTION A

145.A.10 - Scope

This Section establishes the requirements to be met by a maintenance organisation to qualify for the issue or continuation of an approval for the maintenance of aircraft and components. **AMC**

145.A.15 - Application

An application for the issue or change of an approval shall be made to the Military Aviation Authority (MAA) in a form and manner established by such authority. **AMC**

145.A.20 - Terms of approval

The maintenance organisation shall specify the scope of work deemed to constitute approval in its Maintenance Organisation Exposition (MOE)(**Appendix** II to this DASR contains a table of all classes and ratings). **AMC**

145.A.25 - Facility requirements

The maintenance organisation shall ensure that:

(a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur. **AMC**

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;

2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.

(b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards. **AMC**

(c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment shall be such that the effectiveness of personnel is not impaired: **AMC**

1. Temperatures shall be maintained such that personnel can carry out required tasks without undue discomfort.

2. Dust and any other airborne contamination shall be kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in

Superseded

visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.

3. Lighting shall be such as to ensure each inspection and maintenance task can be carried out in an effective manner.

4. Noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.

5. Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions shall be observed. Specific conditions are identified in the maintenance data.

6. The working environment for line maintenance shall be such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

(d) Secure storage facilities shall be provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage shall be in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel. ☐ **AMC**

145.A.30 - Personnel requirements

☐ **AMC**

(a) The maintenance organisation shall appoint an Accountable Manager who has corporate authority for ensuring that all maintenance can be carried out to the standard required by DASR 145. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish maintenance in accordance with DASR 145.A.65(b) to support the maintenance organisation approval.

2. Establish and promote the safety and quality policy specified in DASR 145.A.65(a).

3. Demonstrate a basic understanding of this DASR.

(b) The maintenance organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the maintenance organisation complies with this DASR. Such person(s) shall ultimately be responsible to the Accountable Manager. ☐ **AMC**

1. The person or persons nominated shall represent the maintenance management structure of the maintenance organisation and be responsible for all functions specified in this DASR.

2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by the MAA.

Superseded

3. The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this DASR. ☐ **AMC**

4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.

(c) The Accountable Manager under paragraph (a) shall appoint a person with responsibility for monitoring the quality system, including the associated feedback system as required by DASR 145.A.65(c). The appointed person shall have direct access to the Accountable Manager to ensure that the Accountable Manager is kept properly informed on quality and compliance matters. ☐ **AMC**

(d) The maintenance organisation shall have a maintenance person-hour plan showing that the maintenance organisation has sufficient competent staff to plan, perform, supervise, inspect and quality monitor the maintenance organisation in accordance with the approval. In addition the maintenance organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period. ☐ **AMC**

(e) The maintenance organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard defined through the MOE and approved by the MAA. In addition to the necessary expertise related to the job function, competence shall include an understanding of the application of human factors and human performance issues appropriate to that person's function in the maintenance organisation. ☐ **AMC1** ☐ **AMC2** ☐ **AMC3** ☐ **AMC4** ☐ **GM1** ☐ **GM2** ☐ **GM3**

'Human factors' means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

'Human performance' means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

(f) The maintenance organisation shall ensure that personnel who carry out and/or control a non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the MAA. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards. ☐ **AMC** ☐ **AMC1** ☐ **AMC2** ☐ **GM**

1. By way of exception to paragraph (f), a maintenance organisation may authorise those personnel specified in paragraphs (g) and (h)(1), qualified in Category B1 in accordance with DASR 66, to carry out and/or control colour contrast dye penetrant inspections/visible dye penetrant inspections which are to be detailed in the MOE.

(g) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate Military Aircraft Type Rated certifying staff, qualified as category B1, B2 in accordance with DASR 66 and DASR 145.A.35. ☐ **AMC**

Superseded

In addition such maintenance organisations may also use appropriately task trained certifying staff holding the privileges described in DASR 66.A.20(a)(1) or DASR 66.A.20(a)3(ii) and qualified in accordance with DASR 66 and DASR 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for Category B1, B2 certifying staff as appropriate.

(h) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall: ☐ **AMC**

1. In the case of base maintenance of aircraft, have appropriate Military Aircraft Type Rated certifying staff qualified as Category C in accordance with DASR 66 and DASR 145.A.35. In addition the maintenance organisation shall have sufficient Military Aircraft Type Rated staff qualified as Category B1 or B2 as appropriate in accordance with DASR 66 and DASR 145.A.35 to support the category C staff.

   i. Category B1 and B2 support staff shall ensure that all relevant maintenance tasks have been carried out to the required standard before the Category C certifying staff issues the Certificate of Release to Service (CRS) for aircraft.

   ii. The maintenance organisation shall maintain a register of any such B1 and B2 support staff.

   iii. The Category C certifying staff shall ensure that compliance with paragraph (i) has been met and that all work has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the appropriate Continuing Airworthiness Management Organisation (CAMO) to defer such work to another specified check or time limit.

2. NOT APPLICABLE

(i) Component certifying staff shall be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE.

(j) By way of exception to paragraphs (g) and (h), in relation to the obligation to comply with DASR 66 the maintenance organisation may use certifying staff qualified in accordance with the following provisions:

1. NOT APPLICABLE

2. NOT APPLICABLE

3. For a repetitive pre-flight Airworthiness Directive (AD) which specifically states that the flight crew may carry out such AD, the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held. However, the maintenance organisation shall ensure that sufficient practical training has been carried out to ensure that such aircraft commander and/or flight engineer can accomplish the AD to the required standard.

4. In the case of aircraft operating away from a supported location the maintenance organisation may issue a limited certification authorisation to the aircraft commander

Superseded

and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held subject to being satisfied that sufficient practical training has been carried out to ensure that the aircraft commander and/or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in a MOE procedure. ☐ **AMC** ☐ **GM**

5. In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation: ☐ **AMC**

i. to one of its employees holding equivalent authorisations on other aircraft types of similar technology, construction and systems; or ☐ **AMC**

ii. to any person with not less than five years maintenance experience and holding a valid Military Aircraft Maintenance Licence (MAML) rated for the aircraft, provided there is no maintenance organisation appropriately approved under DASR 145 at that location and the supporting maintenance organisation obtains and holds on file evidence of the experience and the MAML of that person. ☐ **AMC**

All such cases as specified in this subparagraph shall be reported to the MAA within seven days of the issuance of such certification authorisation. The maintenance organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved maintenance organisation.

(k) To certify on-aircraft maintenance performed on armament, rescue and escape systems and other military-specific systems, any maintenance organisation maintaining aircraft shall have sufficient staff possessing the Category A, B1 or B2 MAML with the appropriate extensions.

145.A.35 - Certifying staff and support staff

(a) In addition to the appropriate requirements of DASR 145.A.30(g) and (h), the maintenance organisation shall ensure that certifying and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of the certification authorisation. ☐ **AMC**

i. 'Support staff' means those staff holding a DASR 66 MAML in Category B1 and/or B2 with the appropriate extensions and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

ii. 'Relevant aircraft and/or components', means those aircraft or components specified in the particular certification authorisation.

iii. 'Certification authorisation' means the authorisation issued to certifying staff by the Approved Maintenance Organisation (AMO) and which specifies the fact that they may sign CRSs within the limitations stated in such authorisation on behalf of the AMO.

(b) Excepting those cases listed in DASR 145.A.30(j) and DASR 66.A.20(a)3(ii) the maintenance organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any Military Aircraft Type Rating endorsed on the MAML, subject to the MAML remaining valid throughout the validity period of the

Superseded

authorisation and the certifying staff remaining in compliance with DASR 66. **AMC** **AMC1**

The maintenance organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of DASR 145 and DASR 66. In granting the certification authorisation the maintenance organisation needs to be satisfied that the person holds a valid and applicable DASR 66 MAML and shall confirm such fact with their MAA.

(c) The maintenance organisation shall ensure that all certifying staff and support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period. **AMC1** **AMC2**

For the purpose of this paragraph 'involved in actual relevant aircraft or component maintenance' means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

(d) The maintenance organisation shall ensure that all certifying staff and support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, maintenance organisation procedures and human factor issues. **AMC**

(e) The maintenance organisation shall establish a programme for continuation training for certifying staff and support staff, including a procedure to ensure compliance with the relevant paragraphs of DASR 145.A.35 as the basis for issuing certification authorisations under this DASR to certifying staff, and a procedure to ensure compliance with DASR 66. **AMC**

(f) Except where any of the unforeseen cases of DASR 145.A.30(j)(5) apply, the maintenance organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the MOE prior to the issue or re-issue of a certification authorisation under this DASR. **AMC**

(g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (c) have been fulfilled by the certifying staff, the maintenance organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable, paragraph (c).

(h) The certification authorisation shall be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, the maintenance organisation shall make a code translation readily available.

'Authorised person' means the officials of the MAA.

(i) The maintenance organisation shall nominate an individual who shall remain responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the MOE.

Superseded

(j) The maintenance organisation shall maintain a record of all certifying staff and support staff which shall contain: ☐ **AMC**

1. Details of any MAML held under DASR 66; and

2. All relevant training completed; and

3. The scope of the certification authorisations issued, where relevant; and

4. Particulars of staff with limited or one-off certification authorisations.

The maintenance organisation shall retain the record for at least three years after the certifying staff or support staff have ceased employment with the maintenance organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish certifying staff and support staff with a copy of their record on leaving the maintenance organisation. ☐ **GM**

The certifying staff and support staff shall be given access on request to their personal records as detailed above.

(k) The maintenance organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.

(l) Certifying staff shall produce their certification authorisation to any authorised person within 72 hours.

(m) The minimum age for certifying staff and support staff shall be 21 years. By exception, for minor scheduled line maintenance and simple defect rectification, using privileges described in DASR 66.A.20(a)(1) or DASR 66.A.20(a)3(ii), the minimum age for certifying staff shall be 18 years.

(n) The holder of a Category A MAML may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant Category A aircraft task training carried out by an organisation appropriately approved in accordance with DASR 145 or DASR 147. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the AMO or DASR 147 MTO. ☐ **AMC**

(o) The holder of a Category B2 MAML may only exercise the certification privileges described in DASR 66.A.20(a)(3)(ii) following the satisfactory completion of: ☐ **AMC** ☐ **GM**

i. the relevant Category A aircraft task training; and

ii. 6 months of documented practical experience covering the scope of the authorisation that will be issued.

The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/ assessment shall be carried out by the AMO issuing the certifying staff authorisation. The practical experience shall be also obtained within the same AMO unless approved otherwise by the MAA.

Superseded

145.A.40 - Equipment, tools and material

(a) The maintenance organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work. ☐ **AMC**

1. Where the manufacturer specifies a particular tool or equipment, the maintenance organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by the MAA via procedures specified in the MOE. ☐ **GM**

2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in the MOE.

3. A maintenance organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.

(b) The maintenance organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the maintenance organisation ☐ **AMC**

145.A.42 - Acceptance of components

(a) All components shall be classified and appropriately segregated into the following categories: ☐ **AMC**

1. Components which are in a satisfactory condition, released on a DASR Form 1 or equivalent and marked in accordance with DASR 21 Section A Subpart Q.

2. Unserviceable components which shall be maintained in accordance with this section. A component shall be considered unserviceable in any one of the following circumstances: ☐ **AMC**

   i. expiry of the service life limit as defined in the Aircraft Maintenance Programme (AMP);

   ii. non-compliance with the applicable ADs and other continued or continuing airworthiness requirement mandated by the MAA;

   iii. absence of the necessary information to determine the airworthiness status or eligibility for installation;

   iv. evidence of defects or malfunctions;

   v. involvement in an incident or accident likely to affect its serviceability.

Unserviceable components shall be identified and stored in a secure location under the control of a maintenance organisation until a decision is made on the future status of such component.

3. Unsalvageable components which are classified in accordance with DASR 145.A.42(d). A maintenance organisation in consultation with the CAMO/Operating Organisation shall, in the case of unsalvageable components: ☐ **AMC**

Superseded

i. retain such components in a secure location under the control of the maintenance organisation until a decision is made on the future status of such component; or ☐ **AMC**

ii. arrange for the components to be mutilated in a manner that ensures they are beyond economic salvage or repair before relinquishing responsibility for such components. By way of exception, a CAMO/Operating Organisation may transfer responsibility of components classified as unsalvageable to an organisation for training or research without mutilation. ☐ **AMC**

4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data. These parts shall be accompanied by a manufacturer's declaration of conformity traceable to the applicable standard. ☐ **AMC**

5. Material both raw and consumable used in the course of maintenance when the maintenance organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement plus both the manufacturing and supplier source. ☐ **AMC**

6. NOT APPLICABLE.

(b) Prior to installation of a component, the maintenance organisation shall ensure that the particular component is eligible to be fitted when different modification and/or AD standards may be applicable. ☐ **AMC**

(c) The maintenance organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, or other facilities if this is approved by the MAA, provided procedures are identified in the MOE. ☐ **AMC**

(d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to DASR 21. ☐ **AMC** ☐ **GM**

(e) NOT APPLICABLE.

145.A.45 - Maintenance data

(a) The maintenance organisation shall have access to and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. 'Applicable' means relevant to any aircraft, component or process specified in the Maintenance Organisation Approval Schedule and in any associated capability list.

In the case of maintenance data provided by a CAMO/Operating Organisation, the maintenance organisation shall have access to such data when the work is in progress, with the exception of the need to comply with DASR 145.A.55(c).

(b) For the purposes of DASR 145, applicable maintenance data shall be any of the following: ☐ **AMC**

1. Any applicable requirement, procedure, operational directive or information issued by or provided by the MAA;

Superseded

2. Any applicable AD issued by the MAA;

3. Instructions for Continuing Airworthiness, issued by (Military) Type Certificate (MTC) holders, (Military) Supplementary Type Certificate (MSTC) holders, any other organisation required to publish such data by DASR 21 and in the case of aircraft or components from third countries the airworthiness data mandated by the Authority responsible for the oversight of the aircraft or component and accepted by the MAA;

4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by the MAA as a good standard for maintenance;

5. Any applicable data issued in accordance with paragraph (d).

(c) The maintenance organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data. ☐ **AMC**

(d) The maintenance organisation may only modify maintenance instructions in accordance with a procedure specified in the MOE. With respect to those changes, the maintenance organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the MTC holder/MSTC holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications. ☐ **AMC**

(e) The maintenance organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the maintenance organisation. In addition, the maintenance organisation shall either transcribe accurately the maintenance data contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task. ☐ **AMC** ☐ **GM**

Where the maintenance organisation provides a maintenance service to an Operating Organisation/CAMO who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the maintenance organisation shall establish a procedure to ensure correct completion of the Operating Organisation's/CAMO's work cards or worksheets.

(f) The maintenance organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel. ☐ **AMC**

(g) The maintenance organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of maintenance data controlled and provided by the Operating Organisation/CAMO, the maintenance organisation shall be able to show that either it has written confirmation from the Operating Organisation/CAMO that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the Operating Organisation's/CAMO's maintenance data amendment list. ☐ **AMC**

Superseded

145.A.47 - Maintenance planning

(a) The maintenance organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work. **AMC**

(b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations. **AMC**

(c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated between outgoing and incoming personnel. **AMC**

145.A.48 - Performance of maintenance

(a) All maintenance shall be performed by qualified personnel, following the methods, techniques, standards, and instructions specified in the DASR 145.A.45 maintenance data.

(b) An independent inspection shall be carried out after any flight safety sensitive maintenance task unless otherwise specified in this DASR or agreed by the MAA. **AMC**

(c) Only the authorised certifying staff according to DASR 145.A.35 and in consultation with the CAMO as necessary, can decide, using DASR 145.A.45 maintenance data, whether an aircraft defect hazards seriously the flight safety and therefore decide when and which rectification action shall be taken before further flight and which defect rectification can be deferred. However, this does not apply when: **AMC**

1. the approved Minimum Equipment List as mandated by the MAA is used; or

2. aircraft defects are defined as being acceptable by the MAA.

(d) After completion of all maintenance, a general verification shall be carried out to ensure the aircraft or component is clear of all tools, equipment, and any other extraneous parts and material, and that all access panels removed have been refitted.

145.A.50 - Certification of maintenance

(a) A CRS for aircraft and a CRS for components shall be issued by appropriately authorised certifying staff on behalf of the AMO when it has been verified that all maintenance ordered/ tasked has been properly carried out in accordance with the procedures specified in DASR 145.A.70, taking into account the availability and use of the maintenance data specified in DASR 145.A.45 and that there are no non-compliances which are known to endanger flight safety. **AMC**

(b) A CRS for aircraft shall be issued before flight at the completion of any maintenance. **AMC**

(c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the Operating Organisation/CAMO for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the Operating Organisation/

Superseded

CAMO declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.

(d) A CRS for components shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate or airworthiness approval tag identified as DASR Form 1 constitutes the component CRS. When an AMO maintains a component for its own use, a DASR Form 1 may not be necessary depending upon the AMO's internal release procedures defined in the MOE. ☐ **AMC1** ☐ **AMC2**

(e) By way of exception to paragraph (a), when the AMO is unable to complete all maintenance ordered/tasked, it may issue a CRS within the approved aircraft limitations. The AMO shall enter such fact in the aircraft CRS before the issue of such certificate. Details of any deferred maintenance are to be entered in the aircraft technical log by appropriately approved certifying staff. ☐ **AMC**

(f) By way of exception to paragraphs (a) and DASR 145.A.42 when an aircraft is grounded at a location other than the Main Operation Base (MOB) due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with another release certificate, subject to CAMO approval, which is in compliance with all the applicable technical and operational requirements. The fitment of such components shall be noted in the aircraft documentation, with a provision for the component to be removed at a time specified by the CAMO, unless an appropriate release certificate has been obtained in the meantime under paragraph (a) and DASR 145.A.42. ☐ **AMC**

145.A.55 - Maintenance records

(a) The maintenance organisation shall record all details of maintenance work carried out. As a minimum, the AMO shall retain records necessary to prove that all requirements have been met for issuance of the CRS, including all release documents. ☐ **GM**

(b) The AMO shall provide a copy of each CRS to the CAMO, together with a copy of any specific repair/modification data used for repairs/modifications carried out.

(c) The AMO shall retain a copy of all detailed maintenance records and any associated maintenance data for three years from the date the aircraft or component to which the work relates was released from the AMO. ☐ **AMC** ☐ **GM**

1. Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period. ☐ **GM**

2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.

3. Where an AMO terminates its operation, all retained maintenance records covering the last three years shall be distributed to the CAMO responsible for the respective aircraft or component or shall be stored as specified by the MAA. ☐ **GM**

Superseded

145.A.60 - Occurrence reporting

(a) The maintenance organisation shall report to the MAA and all further addressees as required by national regulations any condition of the aircraft or component identified by the maintenance organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety. ☐ **GM**

(b) The maintenance organisation shall establish an internal occurrence reporting system as detailed in the MOE to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the maintenance organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ☐ **AMC**

(c) The maintenance organisation shall make such reports in a form and manner established by the MAA, and ensure that they contain all pertinent information about the condition and evaluation results known to the maintenance organisation. ☐ **GM**

(d) The maintenance organisation shall report to the CAMO/Operating Organisation any such condition affecting the aircraft or component.

(e) The maintenance organisation shall produce and submit such reports within predefined MAA timeframes, but in any case within 72 hours of the maintenance organisation identifying the condition to which the report relates.

145.A.65 - Safety and quality policy, maintenance procedures, quality system and safety management system

(a) The maintenance organisation shall establish a safety and quality policy for the organisation to be included in the MOE under DASR 145.A.70. ☐ **AMC**

(b) The maintenance organisation shall establish procedures agreed by the MAA taking into account human factors and human performance to ensure good maintenance practices and compliance with DASR 145 which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with DASR 145.A.50. ☐ **AMC**

1. The maintenance procedures under this paragraph apply to DASR 145.A.25 to DASR 145.A.95.

2. The maintenance procedures established or to be established by the maintenance organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the maintenance organisation intends to work. ☐ **AMC**

3. With regard to aircraft line and base maintenance, the maintenance organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the maintenance organisation's work card or

Superseded

worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks. ☐ **AMC** ☐ **GM**

4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data specified in DASR M.A304.

(c) The maintenance organisation shall establish a quality system that includes the following:

1. Independent audits in order to monitor compliance with required aircraft/aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/aircraft components; and ☐ **AMC** ☐ **GM**

2. A quality feedback reporting system to the person or group of persons specified in DASR 145.A.30(b) and ultimately to the Accountable Manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph (1). ☐ **AMC**

(d) The maintenance organisation shall ensure that its personnel have access to quality system documentation and are knowledgeable of procedures relevant to their function.

(e) Where an organisation has several DASR approvals, the quality systems may be combined.

(f) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR SMS.

145.A.70 - Maintenance Organisation Exposition (MOE)

(a) 'Maintenance Organisation Exposition' means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the maintenance organisation intends to comply with DASR 145. The maintenance organisation shall provide the MAA with a MOE containing the following information: ☐ **AMC** ☐ **GM**

1. A statement signed by the Accountable Manager confirming that the MOE and any referenced associated manuals define the maintenance organisation's compliance with DASR 145 and shall be complied with at all times. When the Accountable Manager is neither the Chief Executive Officer nor senior military commander of the maintenance organisation then one of the latter shall countersign the statement; and

2. The maintenance organisation's safety and quality policy as specified by DASR 145.A.65; and

3. The title(s) and name(s) of the persons nominated under DASR 145.A.30(b); ☐ **GM** and

4. The duties and responsibilities of the persons nominated under DASR 145.A.30(b), including matters on which they may deal directly with the MAA on behalf of the maintenance organisation; and

5. An organisation chart showing associated chains of responsibility between the persons nominated under DASR 145.A.30(b); and

6. A list of certifying staff and support staff; and

7. A general description of human resources; and

Superseded

8. A general description of the facilities located at each address specified in the maintenance organisation's approval certificate; and

9. A specification of the maintenance organisation's scope of work relevant to the extent of approval; and

10. The notification procedure of DASR 145.A.85 for organisation changes; and

11. The MOE amendment procedure; and

12. The procedures and quality system established by the maintenance organisation under DASR 145.A.25 to DASR 145.A.90; and

13. A list of Operating Organisations and CAMOs to which the maintenance organisation provides an aircraft maintenance service; and

14. A list of contracted/tasked organisations, where applicable, as specified in DASR 145.A.75(b); and

15. A list of line stations, where applicable, as specified in DASR 145.A.75(d); and

16. A list of contracted/tasked organisations operating under their own DASR approval, where applicable.

(b) The MOE shall be amended as necessary to remain an up-to-date description of the maintenance organisation. The MOE and any subsequent amendment shall be approved by MAA.

(c) Notwithstanding paragraph (b) minor amendments to the MOE may be approved through a MOE procedure (hereinafter called indirect approval).

(d) Where a maintenance organisation has an extant EASA Part 145 approval, those parts of the organisation's EASA Part 145 exposition that are equally applicable to satisfy the DASR 145 requirements shall generally be accepted by the MAA as equivalent in respect of the DASR 145 MOE. In this case it is permissible that only those requirements that are military specific need be addressed in the DASR 145 MOE; those requirements covered by read-across of the sections of the EASA exposition document shall be identified and the EASA document clause reference quoted. ☐ **GM**

(e) Paragraph moved to DASR 145.A.65(d).

145.A.75 - Privileges of the AMO

In accordance with the MOE, the AMO shall be entitled to carry out the following tasks:

(a) Maintain any aircraft and/or component listed on its approval certificate at the locations identified in the approval certificate and in the MOE;

(b) Arrange for the maintenance of any aircraft or component, listed on its approval certificate, to be carried out by another maintenance organisation that is working under the quality system of the AMO. This refers to work being carried out by a maintenance organisation not itself appropriately approved to carry out such maintenance under this DASR and is limited to the work scope permitted under DASR 145.A.65(b) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module. The AMO that contracts/tasks such work retains

Superseded

responsibility for all these maintenance activities irrespective of who is undertaking them. All such maintenance organisations shall be listed in the MOE; ☐ **AMC**

(c) Maintain any aircraft or any component listed on its approval certificate at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the MOE;

(d) Maintain any aircraft and/or component listed on its approval certificate at a location identified as a line maintenance location capable of supporting minor maintenance and only if the MOE both permits such activity and lists such locations;

(e) Issue CRSs in respect of completion of maintenance in accordance with DASR 145.A.50.

145.A.80 - Limitations on the AMO

(a) The AMO shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available. ☐ **AMC**

145.A.85 - Changes to the AMO

(a) The AMO shall notify the MAA of any proposal to carry out any of the following changes before such changes take place to enable the MAA to determine continued compliance with DASR 145 and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity. ☐ **AMC**

1. The name of the AMO;
2. The main location of the AMO;
3. Additional locations of the AMO;
4. The Accountable Manager and all appointed deputies;
5. Any of the persons nominated under DASR 145.A.30(b) and their appointed deputies;
6. The facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval;
7. The ownership of the AMO or its parent company.

145.A.90 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The AMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings; and
2. The MAA being granted access to the AMO to determine continued compliance with this DASR; and

Superseded

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the MAA.

145.A.95 - AMO Findings by the MAA

Refer to GR.60 Oversight and enforcement.

DASR 145 Appendixes

Appendix II

☐ **Appendix II to DASR 145.A.20 - Class and Rating System to be used for the Approval of Maintenance Organisations**

Appendix IV

☐ **Appendix IV to DASR AMC3 145.A.30(e)**

Appendix V

☐ **Appendix V to DASR AMC 145.A.70 - Maintenance Organisation Exposition**

Superseded

SECTION A

66.A.1 - Scope

This section defines the Military Aircraft Maintenance Licence (MAML) and establishes the requirements for application, issue and continuation of its validity.

66.A.3 - MAML categories

☐ **GM**

(a) Military Aircraft Maintenance Licences include the following categories:

- Category A
- Category B1
- Category B2
- Category C

(b) Categories A and B1 are subdivided into subcategories relative to combinations of aeroplanes, helicopters, turbine and piston engines. These subcategories are:

- A1 and B1.1 Aeroplanes Turbine
- A2 and B1.2 Aeroplanes Piston
- A3 and B1.3 Helicopters Turbine
- A4 and B1.4 Helicopters Piston

(c) NOT APPLICABLE.

66.A.5 - Aircraft groups

All military aircraft shall be considered as complex motor-powered aircraft.

66.A.10 - Application

☐ **AMC**

(a) An application for a MAML or change to such a licence shall be made on a DASR Form 19 (see Appendix V to DASR 66) in a manner established by the MAA and submitted thereto. ☐ **GM**

(b) NOT APPLICABLE.

Superseded

(c) In addition to the documents required in DASR 66.A.10(a) the applicant for additional basic categories or subcategories to a MAML shall submit their current MAML to the MAA together with the DASR Form 19. ☐ **GM**

(d) NOT APPLICABLE.

(e) NOT APPLICABLE.

(f) Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application. ☐ **GM**

66.A.15 - Eligibility

An applicant for a MAML shall be at least 18 years of age.

66.A.20 - Privileges

☐ **GM**

(a) The following privileges shall apply: ☐ **GM**

1. A Category A MAML permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in DASR 145.A.35. The certification privileges shall be restricted to work that the licence holder has personally performed in the DASR 145 AMO that issued the certification authorisation. ☐ **GM1**

2. A Category B1 MAML shall permit the holder to issue certificates of release to service and to act as B1 support staff for the following:

   – maintenance performed on aircraft structure, powerplant, mechanical systems and electrical systems, and

   – work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting. ☐ **GM**

Category B1 includes the corresponding A subcategory.

3. A Category B2 MAML shall permit the holder:

   i. to issue certificates of release to service and to act as B2 support staff for the following:

   – maintenance performed on avionic and electrical systems, and

   – electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability

   ii. to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in DASR 145.A.35. This certification privilege shall be restricted to work that the MAML

Superseded

holder has personally performed in the AMO which issued the certification authorisation and limited to the Military Aircraft Type Ratings already endorsed in the B2 MAML. ☐ **GM1**

Category B2 does not include any A subcategory. ☐ **GM2**

4. NOT APPLICABLE.

5. A Category C MAML shall permit the holder to issue certificates of release to service for aircraft following base maintenance on aircraft. The privileges apply to the aircraft in its entirety.

6. Categories A, B1 and B2 MAMLs can have extensions (DASR 66.A.52) to address one or more of the military-specific topics included in Appendix I to DASR 66 (Modules 50 - 55). These shall permit the holder to issue certificates of release to service and act as support staff appropriate to the basic knowledge gained from all modules and as approved by the MAA for maintenance performed on armament, rescue and escape systems and other military-specific systems.

(b) The holder of a MAML shall not exercise its privileges unless: ☐ **AMC**

1. in compliance with the applicable requirements of DASR M and DASR 145; and

2. in the preceding 2-year period the holder has, either had 6 months of maintenance experience in accordance with the privileges granted by the MAML or, met the provision for the issue of the appropriate privileges; and ☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

3. they have the adequate competence to certify maintenance on the corresponding aircraft; and ☐ **AMC**

4. they are able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written. ☐ **GM**

66.A.25 - Basic knowledge requirements

☐ **AMC**

(a) An applicant for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML, shall demonstrate by examination a level of knowledge in the appropriate subject modules in accordance with Appendix I. The examination shall be conducted either by an MTO appropriately approved in accordance with DASR 147 or by the MAA. ☐ **GM**

(b) The training courses and examinations shall be passed within 10 years prior to the application for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML. Should this not be the case, examination credits may however be obtained in accordance with point (c).

(c) The applicant may apply to the MAA for full or partial examination credit to the basic knowledge requirements for:

1. basic knowledge examinations that do not meet the requirement described in point (b) above; and

Superseded

2. any other technical qualification considered by the MAA to be equivalent to the knowledge standard of this DASR. If the applicant holds an EASA Part 66 licence, the MAA may accept the EASA licence as a basis, only requiring additional training to cover the differences between the EASA licence and the MAML requirements. ☐ **AMC**

Credits shall be granted in accordance with Annex A.

(d) Credits expire 10 years after they were granted to the applicant by the MAA. The applicant may apply for new credits after expiration. ☐ **GM**

(e) Modules 50-55 shall be used to provide extensions to a MAML for military-specific systems. Module 53 includes sub-modules that can also be used to provide extensions to a MAML for military-specific systems.

66.A.30 - Basic experience requirements

(a) An applicant for a MAML shall have acquired: ☐ **GM**

1A. for Category A:

1. 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or

2. 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 6 months of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147; or ☐ **GM**

4. 1 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

1B. for Subcategories B1.2 and B1.4:

1. 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or

2. 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 1 year of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of DASR 147 Appendix I) approved in accordance with DASR 147; or

4. 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended

Superseded

minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

The 2 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

2. for Categories B2 and Subcategories B1.1 and B1.3:

1. 5 years of practical maintenance experience on operating military aircraft if the applicant has no previous relevant technical training; or

2. 3 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147; or

4. 3 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

The 3 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

3. for Category C:

1. 3 years of experience exercising Category B1.1, B1.3 or B2 privileges or as support staff according to DASR 145.A.35, or a combination of both; or

2. 5 years of experience exercising Category B1.2 or B1.4 privileges or as support staff according to DASR 145.A.35, or a combination of both.

4. NOT APPLICABLE.

5. for Category C obtained through the academic route: an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution, recognised by the MAA, plus: ☐ **AMC**

1. 3 years of experience working in a military aircraft maintenance environment on a representative selection of tasks directly associated with military aircraft maintenance including 6 months of observation of base maintenance tasks; or

2. experience as detailed by the MAA but not less than 6 months of observation of base maintenance tasks. ☐ **AMC** ☐ **AMC1**

(b) An applicant for an additional category or subcategory to a MAML shall have a minimum aircraft maintenance experience requirement appropriate to the additional category or subcategory of MAML applied for as defined in Appendix IV to DASR 66.

Superseded

(c) The experience shall be practical and involve a representative cross section of maintenance tasks on aircraft.

(d) At least 1 year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial MAML is sought. For subsequent category/subcategory additions to an existing MAML, the additional recent maintenance experience required may be less than 1 year, but shall be at least 3 months. The required experience shall be dependent upon the difference between the MAML category/subcategory held and applied for. Such additional experience shall be typical of the new MAML category/subcategory sought. ☐ **AMC**

(e) Notwithstanding paragraph (a), aircraft maintenance experience gained outside a military aircraft maintenance environment may be accepted when such maintenance is equivalent to that required by this DASR as established by the MAA. Additional experience of military aircraft maintenance shall, however, be required to ensure adequate understanding of the military aircraft maintenance environment. ☐ **AMC**

(f) Experience shall have been acquired within the 10 years preceding the application for a MAML or the addition of a category or subcategory to such a MAML.

66.A.40 - Continued validity of the Military Aircraft Maintenance Licence

☐ **GM**

(a) The MAML shall be issued for an unlimited duration. It shall remain valid subject to the holder remaining in compliance with the requirements in this DASR and the MAML not being suspended, surrendered or revoked.

(b) Upon suspension, surrendering or revocation the MAML shall be returned to the MAA.

(c) Any certification privilege based upon a MAML becomes invalid as soon as the MAML is invalid.

(d) The MAML is only valid:

1. when issued and/or changed by the MAA; and
2. when the holder has signed the document.

(e) If the MAML holder's name, service number or state ID number change, the MAML shall be resubmitted to the MAA within 30 days. ☐ **GM**

66.A.45 - Military Aircraft Type Ratings

☐ **AMC**

(a) In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings, following satisfactory completion of the relevant Military Aircraft Type Training within an DASR 147 approved MTO.

For Category A, no Military Aircraft Type Rating is required, subject to compliance with the task training requirements of DASR 145.A.35.

Superseded

(b) The issuing of a Military Aircraft Type Rating requires the satisfactory completion of the relevant Category B1, B2 or C Military Aircraft Type Training. Where relevant, the MAA may accept an appropriate EASA aircraft type rating as evidence of having undertaken a partial or full equivalent to Military Aircraft Type Training. ☐ **GM**

(c) In addition to the requirement of point (b), the issuing of the first Military Aircraft Type Rating within a given category/sub-category requires satisfactory completion of the corresponding On the Job Training, as described in Appendix III to DASR 66. Any subsequent Military Aircraft Type Rating within a given category/sub-category may require further On the Job Training as defined by the MAA.

(d) NOT APPLICABLE.

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) NOT APPLICABLE.

66.A.50 - Limitations

(a) Limitations introduced on a MAML are exclusions from the certification privileges. If a new Military Aircraft Type Rating is gained, the MAML limitation(s) shall continue to apply to the new Military Aircraft Type Rating. ☐ **GM**

(b) NOT APPLICABLE.

(c) Any limitation shall be removed upon satisfactory completion of the relevant requirements of DASR 66 or as defined in the applicable conversion report.

66.A.52 - Extensions

Extensions introduced on a MAML may allow additional certification privileges. ☐ **AMC**

66.A.55 - Evidence of qualification

Personnel exercising certification privileges as well as support staff shall produce their MAML, as evidence of qualification, within 72 hours upon request by an official of the MAA.

66.A.70 - Conversion provisions

☐ **GM**

The holder of a licence or other qualification for the maintenance of aircraft gained prior to, or an individual undergoing a process to gain such a licence or other qualification prior to, a date established in national regulation shall follow the procedures for conversion into a MAML as set out in Annex B to DASR 66. ☐ **GM**

(a) NOT APPLICABLE.

(b) NOT APPLICABLE.

Superseded

(c) NOT APPLICABLE.

(d) NOT APPLICABLE.

DASR 66 Annexes/Appendices

Annex A to DASR 66 - Examination Credit Procedures (AUS)

This Annex provides the procedures for granting examination credits referred to in DASR 66.A.25(c).

1. **General**

   a. The MAA may only grant credit on the basis of a credit report prepared in accordance with paragraph 2.

   b. The credit report shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.

   c. Credit reports together with any change of these shall be dated and kept on record by the MAA.

2. **Examination credit report**

   a. The credit report shall include a comparison between:

      1. the modules, sub-modules, subjects and knowledge levels contained in Appendix I to DASR 66, as applicable; and

      2. the syllabus of the technical qualification concerned relevant to the particular category being sought.

      NOTE: This comparison shall state if compliance is demonstrated and contain the justifications for each statement.

   b. Credit for examinations, other than basic knowledge examinations carried out in Maintenance Training Organisations approved in accordance with DASR 147, can only be granted by the MAA.

   c. No credit can be granted unless there is a statement of compliance against each module and sub-module, stating where, in the technical qualification, the equivalent standard can be found.

   d. The MAA shall check on a regular basis if changes to the credit report are required due to changes to the national qualification standard or Appendix I to DASR 66. Such changes shall be documented, dated and recorded.

3. **Examination credit validity**

   a. The MAA shall notify the applicant in writing of any credits granted together with the reference to the credit report used.

   b. Credits shall expire 10 years after they are granted.

Superseded

c. Upon expiration of the credits, the applicant may apply for new credits. The MAA shall continue the validity of the credits for an additional period of 10 years without further consideration if basic knowledge requirements defined in Appendix I have not been changed.

Annex B to DASR 66 - Licence Conversion Procedures (AUS)

This Annex provides the procedures for the conversion of military certifying staff qualifications referred to in DASR 66.A.70 into MAMLs.

1. **General**

The MAA may only convert its own national licences or other military qualifications, without prejudice to bilateral agreements, considered valid prior to the entry into national regulation of the applicable requirements of DASR 66.

The MAA may only perform the conversion in accordance with a conversion report established pursuant to this Annex B, paragraph 2 or paragraph 3, as applicable.

Conversion reports shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.

Conversion reports together with any change of these shall be kept on record by the MAA.

2. Conversion report for licences or other qualifications

a. The conversion report for licences or other qualifications into a MAML shall describe the scope of each type of qualification, including the associated national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.

b. The conversion report shall show for each type of qualification referred to in point (a):

1. to which MAML it will be converted; and
2. which limitations/extensions shall be added; and
3. the conditions to remove the limitations, specifying the DASR 66 Appendix I module/subjects on which examination is needed to remove the limitations and obtain a full MAML, or to include an additional (sub-) category. This shall include the modules defined in Appendix III not covered by the national qualification.

3. **Conversion report for Approved Maintenance Organisations authorisations**

This paragraph applies to the issuance of a MAML to maintenance personnel who hold an AMO authorisation allowing them to certify aircraft work but who do not hold a formal national qualification as described in this Annex B. ☐ **GM**

Appendix I to DASR 66 - Basic Knowledge Requirements

1. Knowledge levels for Category A, B1, B2 and C Military Aircraft Maintenance Licence

Basic knowledge for Categories A, B1 and B2 are indicated by knowledge levels (1, 2 or 3) against each applicable subject. Except for the Category C obtained by the academic route (DASR 66.A.30(a)5 refers), Category C applicants shall meet either the Category B1 or the Category B2 basic knowledge levels.

Superseded

The knowledge level indicators are defined on 3 levels as follows:

- LEVEL 1: A familiarisation with the principal elements of the subject.

Objectives:

a. The applicant should be familiar with the basic elements of the subject.
b. The applicant should be able to give a simple description of the whole subject, using common words and examples.
c. The applicant should be able to use typical terms.

- LEVEL 2: A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge.

Objectives:

a. The applicant should be able to understand the theoretical fundamentals of the subject.
b. The applicant should be able to give a general description of the subject using, as appropriate, typical examples.
c. The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject.
d. The applicant should be able to read and understand sketches, drawings and schematics describing the subject.
e. The applicant should be able to apply their knowledge in a practical manner using detailed procedures.

- LEVEL 3: A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives:

a. The applicant should know the theory of the subject and interrelationships with other subjects.
b. The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.
c. The applicant should understand and be able to use mathematical formulae related to the subject.
d. The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
e. The applicant should be able to apply their knowledge in a practical manner using manufacturer's instructions.
f. The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. Modularisation

Qualification on basic subjects for each MAML category or subcategory should be in accordance with the following matrix, where applicable subjects are indicated by an "X":

Subject module	A or B1 aeroplane with:	A or B1 helicopter with:	B2

Superseded

	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Avionics
1 Mathematics	X	X	X	X	X
2 Physics	X	X	X	X	X
3 Electrical Fundamentals	X	X	X	X	X
4 Electronic Fundamentals	X	X	X	X	X
5 Digital Techniques/ Electronic Instrument Systems	X	X	X	X	X
6 Materials and Hardware	X	X	X	X	X

Superseded

7 Maintenance Practices	X	X	X	X	X
8 Basic Aerodynamics	X	X	X	X	X
9 Human Factors	X	X	X	X	X
10 Aviation Legislation	X	X	X	X	X
11a Turbine Aeroplane Aerodynamics, Structures and Systems	X				
11b Piston Aeroplane Aerodynamics, Structures and Systems		X			
12			X	X	

Superseded

Helicopter Aerodynamics, Structures and Systems					
13 Aircraft Aerodynamics, Structures and Systems					X
14 Propulsion					X
15 Gas Turbine Engine	X		X		
16 Piston Engine		X		X	
17 Propeller	X	X			
50 Essential Principles of Armament	*	*	*	*	*

Superseded

51 Weapon Stores System	*	*	*	*	*
52 Operational Attack Systems	*	*	*	*	*
53 Surveillance and Electronic Warfare	*	*	*	*	*
54 Crew Safety	*	*	*	*	*
55 Military Communication Systems					*

* - see DASR 66.A.25(e) for qualification requirements on Modules 50-55 (military-specific systems)

MODULE 1 - MATHEMATICS

	Level		
	A	B1	B2

Superseded

1.1 Arithmetic Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes, square and cube roots.	1	2	2
1.2 Algebra (a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;	1	2	2
(b) Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second degree equations with one unknown; logarithms.	-	1	1
1.3 Geometry (a) Simple geometrical constructions;	-	1	1
(b) Graphical representation; nature and uses of graphs, graphs of equations/ functions;	2	2	2
(c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	-	2	2

MODULE 2 - PHYSICS

	Level		
	A	B1	B2
2.1 Matter Nature of matter: the chemical elements, structure of atoms, molecules; Chemical compounds; States: solid, liquid and gaseous; Changes between states.	1	1	1
2.2 Mechanics *2.2.1 Statics* Forces, moments and couples, representation as vectors;	1	2	1

Superseded

Centre of gravity; Elements of theory of stress, strain and elasticity: tension, compression, shear and torsion; Nature and properties of solid, fluid and gas; Pressure and buoyancy in liquids (barometers).			
2.2.2 Kinetics Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity); Rotational movement: uniform circular motion (centrifugal/ centripetal forces); Periodic motion: pendular movement; Simple theory of vibration, harmonics and resonance; Velocity ratio, mechanical advantage and efficiency.	1	2	1
2.2.3 Dynamics (a) Mass; Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;	1	2	1
(b) Momentum, conservation of momentum; Impulse; Gyroscopic principles; Friction: nature and effects, coefficient of friction (rolling resistance).	1	2	2
2.2.4 Fluid dynamics (a) Specific gravity and density;	2	2	2
(b) Viscosity, fluid resistance, effects of streamlining; Effects of compressibility on fluids; Static, dynamic and total pressure: Bernoulli's Theorem, Venturi effect.	1	2	1
2.3 Thermodynamics (a) Temperature: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;	2	2	2

Superseded

(b) Heat capacity, specific heat; Heat transfer: convection, radiation and conduction; Volumetric expansion; First and second law of thermodynamics; Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas; Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps; Latent heats of fusion and evaporation, thermal energy, heat of combustion.	-	2	2
2.4 Optics (Light) Nature of light; speed of light; Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses; Fibre optics.	-	2	2
2.5 Wave Motion and Sound Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves; Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.	-	2	2

MODULE 3 - ELECTRICAL FUNDAMENTALS

	Level		
	A	B1	B2
3.1 Electron Theory Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.	1	1	1
3.2 Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law;	1	2	2

Superseded

Conduction of electricity in solids, liquids, gases and a vacuum.			
3.3 Electrical Terminology The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	1	2	2
3.4 Generation of Electricity Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.	1	1	1
3.5 DC Sources of Electricity Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, Li-ion cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery; Construction, materials and operation of thermocouples; Operation of photo-cells.	1	2	2
3.6 DC Circuits Ohms Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply.	1	2	2
3.7 Resistance/Resistor (a) Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge;	-	2	2
(b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats;	-	1	1

Superseded

Construction of Wheatstone Bridge.			
3.8 Power Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.	-	2	2
3.9 Capacitance/Capacitor Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor colour coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.	-	2	2
3.10 Magnetism (a) Theory of magnetism; Properties of a magnet; Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor; b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets.	- -	2 2	2 2
3.11 Inductance/Inductor Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles;	-	2	2

Superseded

Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self-induction; Saturation point; Principle uses of inductors.			
3.12 DC Motor/Generator Theory Basic motor and generator theory; Construction and purpose of components in DC generator; Operation of, and factors affecting output and direction of current flow in DC generators; Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; Series wound, shunt wound and compound motors; Starter Generator construction.	-	2	2
3.13 AC Theory Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power; Triangular/Square waves; Single/3 phase principles.	1	2	2
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.	-	2	2

Superseded

3.15 Transformers Transformer construction principles and operation; Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers.	-	2	2
3.16 Filters Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.	-	1	1
3.17 AC Generators Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.	-	2	2
3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	-	2	2

MODULE 4 - ELECTRONIC FUNDAMENTALS

	Level		
	A	B1	B2

Superseded

4.1 Semiconductors *4.1.1 Diodes* (a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes; (b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.	- -	2 -	2 2
4.1.2 Transistors (a) Transistor symbols; Component description and orientation; Transistor characteristics and properties; (b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.	- -	1 -	2 2

Superseded

4.1.3 Integrated Circuits (a) Description and operation of logic circuits and linear circuits/operational amplifiers; (b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.	- - -	1 - -	- - 2
4.2 Printed Circuit Boards Description and use of printed circuit boards.	-	1	2
4.3 Servomechanisms (a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system components/ features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters; (b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.	- - -	1 - -	- - 2

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

	Level		
	A	B1	B2

Superseded

5.1 Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.	1	2	3
5.2 Numbering Systems Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.	-	1	2
5.3 Data Conversion Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.	-	1	2
5.4 Data Buses Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications; Aircraft Network/Ethernet.	-	2	2
5.5 Logic Circuits (a) Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams; (b) Interpretation of logic diagrams.	- -	2 -	2 2
5.6 Basic Computer Structure (a) Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems); (b) Computer related terminology; Operation, layout and interface of the major components in a micro-computer including their associated bus systems; Information contained in single and multi-address instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.	1 -	2 -	- 2
5.7 Microprocessors Functions performed and overall operation of a microprocessor;	-	-	2

Superseded

Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.			
5.8 Integrated Circuits Operation and use of encoders and decoders; Function of encoder types; Uses of medium, large and very large scale integration.	-	-	2
5.9 Multiplexing Operation, application and identification in logic diagrams of multiplexers and demultiplexers.	-	-	2
5.10 Fibre Optics Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems.	-	1	2
5.11 Electronic Displays Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	-	2	2
5.12 Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.	1	2	2
5.13 Software Management Control Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.	-	2	2
5.14 Electromagnetic Environment Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field	-	2	2

Superseded

Lightning/lightning protection.			
5.15 Typical Electronic/Digital Aircraft Systems General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) such as: ACARS-ARINC Communication and Addressing and Reporting System EICAS-Engine Indication and Crew Alerting System FBW-Fly-by-Wire FMS-Flight Management System IRS-Inertial Reference System ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems.	-	2	2

MODULE 6 - MATERIALS AND HARDWARE

	Level		
	A	B1	B2
6.1 Aircraft Materials — Ferrous (a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels; (b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	1 -	2 1	1 1
6.2 Aircraft Materials — Non-Ferrous (a) Characteristics, properties and identification of common non-ferrous materials used in aircraft;	1	2	1

Superseded

Heat treatment and application of non-ferrous materials; (b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.3 Aircraft Materials — Composite and Non-Metallic *6.3.1 Composite and non-metallic other than wood and fabric* (a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents; (b) The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.	1 1	2 2	2 -
6.3.2 Wooden structures Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.	-	-	-
6.3.3 Fabric covering Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.	-	-	-
6.4 Corrosion (a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress; (b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	1 2	1 3	1 2

Superseded

6.5 Fasteners *6.5.1 Screw threads* Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads.	2	2	2
6.5.2 Bolts, studs and screws Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self-locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal; Self tapping screws, dowels.	2	2	2
6.5.3 Locking devices Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2
6.5.4 Aircraft rivets Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1
6.6 Pipes and Unions (a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; (b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2 2	2 2	2 1
6.7 Springs Types of springs, materials, characteristics and applications.	1	2	1
6.8 Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2

Superseded

6.9 Transmissions Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	1	2	2
6.10 Control Cables Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1
6.11 Electrical Cables and Connectors Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2

MODULE 7 - MAINTENANCE PRACTICES

	Level		
	A	B1	B2
7.1 Safety Precautions-Aircraft and Workshop Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals; Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	3	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship;	3	3	3

Superseded

Calibration of tools and equipment, calibration standards.			
7.3 Tools Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods; Operation, function and use of electrical general test equipment.	3	3	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	-	2	3
7.5 Engineering Drawings, Diagrams and Standards Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Specification S1000D; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	1	2	2
7.6 Fits and Clearances Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	1	2	1
7.7 Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance;	1	3	3

Superseded

Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; EWIS installations, inspection, repair, maintenance and cleanliness standards.			
7.8 Riveting Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	1	2	-
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	1	2	-
7.10 Springs Inspection and testing of springs.	1	2	-
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	1	2	-
7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	1	2	-
7.13 Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	1	2	-
7.14 Material handling *7.14.1 Sheet Metal* Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	-	2	-

Superseded

7.14.2 Composite and non-metallic Bonding practices; Environmental conditions; Inspection methods.	-	2	-
7.15 Welding, Brazing, Soldering and Bonding (a) Soldering methods; inspection of soldered joints; (b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	- -	2 2	2 -
7.16 Aircraft Weight and Balance (a) Centre of Gravity/Balance limits calculation: use of relevant documents; (b) Preparation of aircraft for weighing; Aircraft weighing.	- -	2 2	2 -
7.17 Aircraft Handling and Storage Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies; Effects of environmental conditions on aircraft handling and operation.	2	2	2
7.18 Disassembly, Inspection, Repair and Assembly Techniques (a) Types of defects and visual inspection techniques; Corrosion removal, assessment and reprotection; (b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes; (c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	2 - -	3 2 2	3 - 1

Superseded

(d) Disassembly and re-assembly techniques;	2	2	2
(e) Trouble shooting techniques.	-	2	2
7.19 Abnormal Events (a) Inspections following lightning strikes and HIRF penetration; (b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2 2	2 2	2 -
7.20 Maintenance Procedures Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures; Control of life limited components.	1	2	2
7.21 Armament Safety Safety principles and elements with armed aircraft, ammunitions; Safety aspects of canopy, ejection seat and other pyrotechnic devices.	2	2	2

MODULE 8 - BASIC AERODYNAMICS

	Level		
	A	B1	B2
8.1 Physics of the Atmosphere International Standard Atmosphere (ISA), application to aerodynamics.	1	2	2

Superseded

8.2 Aerodynamics Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio; Thrust, Weight, Aerodynamic Resultant; Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall; Aerofoil contamination including ice, snow, frost.	1	2	2
8.3 Theory of Flight Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope and structural limitations; Lift augmentation.	1	2	2
8.4 Flight Stability and Dynamics Longitudinal, lateral and directional stability (active and passive).	1	2	2

MODULE 9 - HUMAN FACTORS

	Level		
	A	B1	B2
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; "Murphy's" law.	1	2	2

Superseded

9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	1	2	2
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; "Culture" issues; Team working; Management, supervision and leadership; Military environment and other military factors.	1	1	1
9.4 Factors Affecting Performance Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.	2	2	2
9.5 Physical Environment Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Military Working environments.	1	1	1
9.6 Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.	1	1	1

Superseded

9.7 Communication Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	2	2	2
9.8 Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.	1	2	2
9.9 Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	2	2	2

MODULE 10 - AVIATION LEGISLATION

	Level		
	A	B1	B2
10.1 Regulatory Framework Military/State Organisation: Role of the Military Aviation Authority; Introduction to the national military airworthiness regulations.	1	1	1
10.2 Certifying Staff — Maintenance Understanding of MAML and Certifying staff regulation.	2	2	2
10.3 Approved Maintenance Organisations Understanding of DASR 145.	2	2	2
10.4 Air operations Operating Authority's responsibilities, in particular regarding continuing airworthiness and maintenance;	1	2	2

Superseded

Aircraft Maintenance Programme; MEL/CDL or National equivalent; Documents to be carried on board; Aircraft placarding (markings).			
10.5 Certification of aircraft, parts and appliances (a) General; General understanding of DASR 21 and airworthiness codes/criteria; (b) Documents; Military Type-Certificates; Military Restricted Type-Certificates; Military Supplemental Type-Certificates; Military Certificates Of Airworthiness; Military Restricted Certificates Of Airworthiness; Military Permit To Fly; National Certificate of Registration; Weight & Balance; National Noise Certificate if required.	- - -	1 1 1	1 1 1
10.6 Continuing airworthiness Understanding of DASR 21 provisions related to continuing airworthiness; Understanding of DASR M.	1 2	1 2	1 2
10.7 Applicable Requirements a) Maintenance Programmes, Maintenance checks and inspections; Airworthiness Directives; Service Bulletins, manufacturers' service information; Modifications and repairs; Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc ; Master Minimum Equipment Lists, Minimum Equipment List and Dispatch Deviation Lists or National equivalent; (b) Continuing airworthiness; Minimum equipment requirements — Test flights; Maintenance and dispatch requirements.	 1 -	 2 1	 2 1

Superseded

MODULE 11A - TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A1	B1.1
11.1 Theory of Flight *11.1.1. Aeroplane Aerodynamics and Flight Controls* Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;	1	2
11.1.2. High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number; Effects of external stores.	1	2
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary;	2	2

Superseded

Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	1	2
11.3 Airframe Structures — Aeroplanes *11.3.1 Fuselage (System 52/53/56)* Construction and pressurisation sealing; Wing, stabiliser, pylon and undercarriage attachments; Seat installation and cargo loading system; Doors and emergency exits: construction, mechanisms, operation and safety devices; Windows and windscreen construction and mechanisms; Canopy construction and mechanism;	1	2
11.3.2 Wings (System 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments;	1	2
11.3.3 Stabilisers (System 55) Construction; Control surface attachment ;	1	2

Superseded

11.3.4 Flight Control Surfaces (System 55/57) Construction and attachment; Balancing — mass and aerodynamic;	1	2
11.3.5 Nacelles/Pylons (System 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (System 21) *11.4.1 Air supply* Sources of air supply including engine bleed, APU and ground cart;	1	2
11.4.2 Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system;	1	3
11.4.3 Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers; Canopy seal, anti-g system;	1 1	3 2
11.4.4 Safety and warning devices Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems *11.5.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems;	1	2

Superseded

Glass cockpit; Other aircraft system indication.		
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 1

Superseded

11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems; Balancing and rigging; Stall protection/warning system.	1	3
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defueling including Air to Air Refueling (AAR); Longitudinal balance fuel systems including during AAR.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3

Superseded

11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellent; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing; Drag-chute and Arresting hook/landing assistance equipment.	2 1	3 1
11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices; Emergency.	2	3
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution;	1	3

Superseded

Indications and warnings; Interfaces with other systems.		
11.17 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	-	-
11.18 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2
11.19 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc; Core System; Network Components.	1	2
11.20 Cabin Systems (System 44) The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, and video transmissions. The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels. The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System; The Cabin Network Service may host functions such as access to pre-departure/ departure reports; Cabin Core System;	1	2

Superseded

External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.		
11.21 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 11B - PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A2	B1.2
11.1 Theory of Flight *11.1.1. Aeroplane Aerodynamics and Flight Controls* Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons;	1	2

Superseded

Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;		
11.1.2. High Speed Flight – N/A	-	-
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2 1	2 2
11.3 Airframe Structures — Aeroplanes *11.3.1 Fuselage (System 52/53/56)* Construction and pressurisation sealing; Wing, tail-plane, pylon and undercarriage attachments;	1	2

Superseded

Seat installation; Doors and emergency exits: construction and operation; Windows and windscreen attachment; Canopy construction and mechanism.		
11.3.2 Wings (System 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (System 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (System 55/57) Construction and attachment; Balancing — mass and aerodynamic;	1	2
11.3.5 Nacelles/Pylons (System 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (System 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices; Heating systems.	1	3
11.5 Instruments/Avionic Systems *11.5.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit;	1	2

Superseded

Other aircraft system indication.		
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 3
11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks;	1	3

Superseded

Balancing and rigging; Stall warning system.		
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defueling.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical; Filters; Pressure Control; Power distribution; Indication and warning systems.	1	3
11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3

Superseded

11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo; Emergency.	2	3
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	-	-

MODULE 12 - HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A3	B1.3
	A4	B1.4

Superseded

12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	1	2
12.2 Flight Control Systems Cyclic control; Collective control; Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and fly-by-wire; Artificial feel; Balancing and rigging.	2	3
12.3 Blade Tracking and Vibration Analysis Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	1	3
12.4 Transmission Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake;	1	3

Superseded

Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers.		
12.5 Airframe Structures (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection; Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2 1	2 2
12.6 Air Conditioning (System 21) *12.6.1 Air supply* Sources of air supply including engine bleed and ground cart.	1	2
12.6.2 Air conditioning Air conditioning systems; Distribution systems; Flow and temperature control systems;	1	3

Superseded

Protection and warning devices.		
12.7 Instruments/Avionic Systems *12.7.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Vibration indicating systems; HUMS; Glass cockpit; Other aircraft system indication.	1	2
12.7.2 Avionic Systems Fundamentals of system layouts and operation of: Auto Flight (System 22); Communications (System 23); Navigation Systems (System 34).	1	1
12.8 Electrical Power (System 24) Batteries Installation and Operation; DC power generation, AC power generation; Emergency power generation; Voltage regulation, Circuit protection; Power distribution; Inverters, transformers, rectifiers; External/Ground power.	1	3
12.9 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems; (b) Emergency flotation systems; Cargo handling and retention equipment.	2 1	2 1
12.10 Fire Protection (System 26) Fire and smoke detection and warning systems;	1	3

Superseded

Fire extinguishing systems; System tests.		
12.11 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	1	3
12.12 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3
12.13 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing and De-icing systems: electrical, hot air and chemical; Rain repellent and removal; Probe and drain heating; Wiper system.	1	3
12.14 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning;	2	3

Superseded

Wheels, Tyres, brakes; Steering; Air-ground sensing; Skids, floats.		
12.15 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	2	3
12.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
12.17 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc; Core System; Network Components.	1	2
12.18 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2

Superseded

12.19 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 13 - AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level
	B2
13.1 Theory of Flight (a) Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; Operation and effect of trim tabs, servo tabs, control surface bias; (b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number;	1 1

Superseded

(c) Rotary Wing Aerodynamics Terminology; Operation and effect of cyclic, collective and anti-torque controls.	1
13.2 Structures — General Concepts (a) Fundamentals of structural systems; (b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	1 2
13.3 Autoflight (System 22) Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface; Autothrottle systems; Automatic Landing Systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.	3
13.4 Communication/Navigation (System 23/34) (a) Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter; (b) Working principles of following systems: — Very High Frequency (VHF) communication, — High Frequency (HF) communication, — Audio, — Emergency Locator Transmitters (ELT), — Cockpit Voice Recorder (CVR), — Very High Frequency omnidirectional range (VOR), — Tactical air navigation system (TACAN), — Automatic Direction Finding (ADF),	3 3

Superseded

— Instrument Landing System (ILS), — Flight Director systems, Distance Measuring Equipment (DME), — Doppler navigation, — Area navigation, RNAV systems, — Flight Management Systems(FMS), — Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS), GNSS Landing System (GLS), Transponder Landing System (TLS), — Inertial Navigation System (INS), — Air Traffic Control transponder, secondary surveillance radar, — Traffic Alert and Collision Avoidance System (TCAS), — Weather avoidance radar, — Radio altimeter, — Data-link communication and reporting; — Microwave Landing System (MLS), — Very Low Frequency and hyperbolic navigation (VLF/Omega).	-
13.5 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	3
13.6 Equipment and Furnishings (System 25) (a) Electronic emergency equipment requirements; (b) Cabin entertainment equipment.	3 -

Superseded

13.7 Flight Controls (System 27) (a) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems; (b) System operation: electrical, fly-by-wire.	2 3
13.8 Instruments (System 31) Classification; Atmosphere; Terminology; Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros;	3

Superseded

Ground Proximity Warning Systems/Terrain Awareness Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems; Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication; Glass cockpit.	
13.9 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	3
13.10 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	3
13.11 Air Conditioning and Cabin Pressurisation (System 21) *13.11.1. Air supply* Sources of air supply including engine bleed, APU and ground cart;	2
13.11.2. Air Conditioning Distribution systems; Air conditioning systems; Air cycle and vapour cycle machines; Flow, temperature and humidity control system;	1 2 3
13.11.3. Pressurisation Pressurisation systems;	3

Superseded

Control and indication including control and safety valves; Cabin pressure controllers; Canopy seal and anti-g system;	1
13.11.4. Safety and warning devices Protection and warning devices.	3
13.12 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	3 1
13.13 Fuel Systems (System 28) (a) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; (b) Cross-feed and transfer; Refuelling and defuelling including AAR; (c) Longitudinal balance fuel systems; Indications and warnings.	1 2 3
13.14 Hydraulic Power (System 29) (a) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Filters; Power distribution;	1

Superseded

(b) Pressure control; Pressure generation: electrical, mechanical, pneumatic; Emergency pressure generation; Indication and warning systems; Interface with other systems.	3
13.15 Ice and Rain Protection (System 30) (a) Rain repellent; Wiper Systems; (b) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; (c) De-icing systems: electrical, hot air, pneumatic, chemical; Probe and drain heating.	1 2 3
13.16 Landing Gear (System 32) (a) Construction, shock absorbing; Tyres; (b) Extension and retraction systems: normal and emergency; Indications and warnings; Wheels, brakes, antiskid and autobraking; Steering; Air-ground sensing.	1 3
13.17 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	3
13.18 Pneumatic/Vacuum (System 36) (a) Distribution;	1
(b) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply;	2

Superseded

(c) Pressure control; Indications and warnings; Interfaces with other systems.	3
13.19 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing.	-
13.20 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.; Core System; Network Components.	3
13.21 Cabin Systems (System 44) The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data transmissions. The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels. The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System; The Cabin Network Service may host functions such as access to pre-departure/departure reports; Cabin Core System; External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.	3
13.22 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.	3

Superseded

Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	

MODULE 14 - PROPULSION

	Level
	B2
14.1 Turbine Engines (a) Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines; (b) Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC).	1 2
14.2 Engine Indicating Systems Exhaust gas temperature/Interstage turbine temperature systems; Engine speed; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure, temperature and flow; Manifold pressure; Engine torque; Propeller speed.	2
14.3 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	2

Superseded

MODULE 15 - GAS TURBINE ENGINE

	Level	
	A1 A3	B1.1 B1.3
15.1 Fundamentals Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle; The relationship between force, work, power, energy, velocity, acceleration; Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop.	1	2
15.2 Engine Performance Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption; Engine efficiencies; By-pass ratio and engine pressure ratio; Pressure, temperature and velocity of the gas flow; Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.	-	2
15.3 Inlet Compressor inlet ducts; Effects of various inlet configurations; Ice protection.	2	2
15.4 Compressors Axial and centrifugal types; Constructional features and operating principles and applications; Fan balancing; Operation: Causes and effects of compressor stall and surge; Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades;	1	2

Superseded

Compressor ratio.		
15.5 Combustion Section Constructional features and principles of operation.	1	2
15.6 Turbine Section Operation and characteristics of different turbine blade types; Blade to disk attachment; Nozzle guide vanes; Causes and effects of turbine blade stress and creep.	2	2
15.7 Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	1	2
15.8 Bearings and Seals Constructional features and principles of operation.	1	2
15.9 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2
15.10 Lubrication Systems System operation/lay-out and components.	1	2
15.11 Fuel Systems Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
15.12 Air Systems Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.	1	2
15.13 Starting and Ignition Systems Operation of engine start systems and components;	1	2

Superseded

Ignition systems and components; Maintenance safety requirements.		
15.14 Engine Indication Systems Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow; Engine speed; Vibration measurement and indication; Torque; Power.	1	2
15.15 Power Augmentation Systems Operation and applications; Water injection, water methanol; Afterburner systems.	1	1
15.16 Turbo-prop Engines Gas coupled/free turbine and gear coupled turbines; Reduction gears; Integrated engine and propeller controls; Overspeed safety devices.	1	2
15.17 Turbo-shaft Engines Arrangements, drive systems, reduction gearing, couplings, control systems.	1	2
15.18 Auxiliary Power Units (APUs) Purpose, operation, protective systems.	1	2
15.19 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
15.20 Fire Protection Systems Operation of detection and extinguishing systems.	1	2

Superseded

15.21 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Trend (including oil analysis, vibration and boroscope) monitoring; Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer; Compressor washing/cleaning; Foreign Object Damage.	1	3
15.22 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 16 - PISTON ENGINE

	Level	
	A2 A4	B1.2 B1.4
16.1 Fundamentals Mechanical, thermal and volumetric efficiencies; Operating principles — 2 stroke, 4 stroke, Otto and Diesel; Piston displacement and compression ratio; Engine configuration and firing order.	1	2
16.2 Engine Performance Power calculation and measurement; Factors affecting engine power; Mixtures/leaning, pre-ignition.	1	2
16.3 Engine Construction Crank case, crank shaft, cam shafts, sumps; Accessory gearbox; Cylinder and piston assemblies;	1	2

Superseded

Connecting rods, inlet and exhaust manifolds; Valve mechanisms; Propeller reduction gearboxes.		
16.4 Engine Fuel Systems *16.4.1 Carburettors* Types, construction and principles of operation; Icing and heating.	1	2
16.4.2 Fuel injection systems Types, construction and principles of operation.	1	2
16.4.3 Electronic engine control Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
16.5 Starting and Ignition Systems Starting systems, pre-heat systems; Magneto types, construction and principles of operation; Ignition harnesses, spark plugs; Low and high tension systems.	1	2
16.6 Induction, Exhaust and Cooling Systems Construction and operation of: induction systems including alternate air systems; Exhaust systems, engine cooling systems — air and liquid.	1	2
16.7 Supercharging/Turbocharging Principles and purpose of supercharging and its effects on engine parameters; Construction and operation of supercharging/turbocharging systems; System terminology; Control systems; System protection.	1	2
16.8 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2

Superseded

16.9 Lubrication Systems System operation/lay-out and components.	1	2
16.10 Engine Indication Systems Engine speed; Cylinder head temperature; Coolant temperature; Oil pressure and temperature; Exhaust Gas Temperature; Fuel pressure and flow; Manifold pressure.	1	2
16.11 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
16.12 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.	1	3
16.13 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 17 - PROPELLER

	Level	
	A1 A2	B1.1 B1.2
17.1 Fundamentals Blade element theory;	1	2

Superseded

High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip; Aerodynamic, centrifugal, and thrust forces; Torque; Relative airflow on blade angle of attack; Vibration and resonance.		
17.2 Propeller Construction Construction methods and materials used in propellers; Blade station, blade face, blade shank, blade back and hub assembly; Fixed pitch, controllable pitch, constant speeding propeller; Propeller/spinner installation.	1	2
17.3 Propeller Pitch Control Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch; Overspeed protection.	1	2
17.4 Propeller Synchronising Synchronising and synchrophasing equipment.	-	2
17.5 Propeller Ice Protection Fluid and electrical de-icing equipment.	1	2
17.6 Propeller Maintenance Static and dynamic balancing; Blade tracking; Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller treatment/repair schemes; Propeller engine running.	1	3
17.7 Propeller Storage and Preservation Propeller preservation and depreservation.	1	2

MODULE 50 - PRINCIPLES OF ARMAMENT

Superseded

	Level		
	A	B1	B2
50.1 Essential principles of Armament (a) Propellants and explosives; Pyrotechnics (including Flares); Stores loading / unloading (to include chaff and flares) including hang-up and misfire; Ammunitions transportation; Air-to-air missile; Air-to-ground missile; Air-to-sea missile; Aerial torpedo; Bombs (freefall and guided); (b) Missile guidance methods: radar, infrared, electro-optical, passive anti-radiation; Missile warheads and detonation mechanisms; Guided weapon (missiles) aerodynamics and flight controls; (c) Storage, de-stocking and ammunitions assembly; Documents for storage, release and transportation of explosive items and firearms and explosive regulations.	1 1 1	1 1 1	1 1 1

MODULES 50 – 55: MILITARY-SPECIFIC SYSTEMS

MODULE 51 - WEAPONS SYSTEMS

	Level		
	A	B1	B2
51.1 Weapons stores system (System 94) (a) Weapon and stores release, fire and jettison stores;	2	3	3

Superseded

Weapon suspension system; Interconnecting equipment to transport and release/fire weapons; Gunnery; (b) Weapon control, designating and acquiring a target.	1	2	3

MODULE 52 - OPERATIONAL ATTACK SYSTEMS

	Level		
	A	B1	B2
52.1 Attack System Management (System 39) Architecture, management; Attack system functions; General rules of human-machine communication; Digital Networks, hardware and software, other information networks, network for video signals, network for blanking signals, MIL-STD-1553B (STANAG 3838 and STANAG 3910), MIL-STD-1773; Stores management hardware and software; Attack system resources, contributing resources; Role during mission phases.	-	2	3
52.2 Operational attack functions (System 40) Air-to-air functions: fire control functions, bullet gun firing, short range, medium range or beyond visual range missiles firing, air-to-air management after weapons launch, management of on-board guidance; Air-to-surface functions, Air-to-sea functions; Information exchange and cooperation; Navigational functions, localisation, flight management, approach and landing management; Nap of the earth flight: terrain following and obstacle avoidance management; Self protection: defensive manoeuvers and tactics elaboration against threats;	-	2	3

Superseded

Identification: aerial and surface objects identification based on autonomous and external identification means.			
52.3 Cross-technical attack functions (System 42) Tactical situation awareness; Aircraft Mission preparation and restitution, hardware and software; Cautions and warnings management; Mission system control and management; Trajectory management; Attack system compatibilities management, electromagnetic compatibility between all the transmitters and receivers.	-	2	3

MODULE 53 - SURVEILLANCE AND ELECTRONIC WARFARE

	Level		
	A	B1	B2
53.1 Surveillance (System 93) Data processing; Data display; Recording; Identification; Infra-red and laser sensors; Surveillance radar; Magnetic sensors; Sonar sensors (active and passive).	1	2	3
53.2 Image recording (System 97) (a) Optical systems;	1	2	2
(b) Specificities of aerial photography; Cameras.	1	1	1

Superseded

53.3 Electronic warfare (System 99) Active electromagnetic; Passive electromagnetic; ELINT; Infrared and Laser systems; Electromagnetic countermeasures.	-	2	3

MODULE 54 - CREW SAFETY

	Level		
	A	B1	B2
54.1 Crew escape and safety (System 95) Ejection seats; Escape hatches/canopy, Miniature Detonating Cord (MDC); Global survival kits; Impact protection.	2	3	2

MODULE 55 - MILITARY COMMUNICATION SYSTEMS

	Level		
	A	B1	B2
55.1 Military communication systems Tactical Data Links: Link 11, Link 16, Link 22; Tactical communications systems.	-	-	3

Superseded

1. General

1.1 All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.

1.2 Each multi-choice question shall have at least three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of 75 seconds per question.

1.3 Each essay question requires the preparation of a written answer and the candidate shall be allowed 20 minutes to answer each such question.

1.4 Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in Appendix I Modules 7, 9 and 10.

1.5 Each essay question will have a model answer drafted for it, which will also include any known alternative answers that may be relevant for other sub-modules.

1.6 The essay question model answer will also be broken down into a list of the important points known as Key Points.

1.7 The pass mark for each module and sub-module multi-choice part of the examination is 75 %.

1.8 The pass mark for each essay question is 75 % in that the candidates answer shall contain 75 % of the required key points addressed by the question and no significant error related to any required key point.

1.9 If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi- choice or essay part, as appropriate.

1.10 Penalty marking systems shall not be used.

1.11 A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of a maintenance training organisation approved in accordance with DASR 147 which conducts a course of retraining tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days, unless approved otherwise by the MAA.

1.12 The time periods required by DASR 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence, where the licence has already been issued.

1.13 The maximum number of consecutive attempts for each module is three. Further sets of three attempts are allowed with a 1 year waiting period between sets, unless approved by the MAA.

The applicant shall confirm in writing to the approved MTO or the MAA to which they apply for an examination, the number and dates of attempts during the last year and the MTO or

Superseded

the MAA where these attempts took place. The MTO or the MAA is responsible for checking the number of attempts within the applicable timeframes.

2. Number of questions per module

MODULE 1 — MATHEMATICS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B2: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 2 — PHYSICS

Category A: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 3 — ELECTRICAL FUNDAMENTALS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 4 — ELECTRONIC FUNDAMENTALS

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

MODULE 5 — DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

Category B2: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 6 — MATERIALS AND HARDWARE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B2: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

MODULE 7 — MAINTENANCE PRACTICES

Category A: 72 multi-choice and 2 essay questions. Time allowed 90 minutes plus 40 minutes.

Category B1: 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes.

Category B2: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

Superseded

MODULE 8 — BASIC AERODYNAMICS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

MODULE 9 — HUMAN FACTORS

Category A: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B1: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B2: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

MODULE 10 — AVIATION LEGISLATION

Category A: 32 multi-choice and 1 essay question. Time allowed 40 minutes plus 20 minutes.

Category B1: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

Category B2: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

MODULE 11A — TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 108 multi-choice and 0 essay questions. Time allowed 135 minutes.

Category B1: 140 multi-choice and 0 essay questions. Time allowed 175 minutes.

MODULE 11B — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B1: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

MODULE 12 — HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS:

Category A: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

Category B1: 128 multi-choice and 0 essay questions. Time allowed 160 minutes.

MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B2: 180 multi-choice and 0 essay questions. Time allowed 225 minutes.

Questions and time allowed may be split into two examinations as appropriate.

MODULE 14 — PROPULSION

Category B2: 24 multi-choice and 0 essay questions. Time allowed 30 minutes.

MODULE 15 — GAS TURBINE ENGINE

Category A: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

Category B1: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

MODULE 16 — PISTON ENGINE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Superseded

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 17 — PROPELLER

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 50 — PRINCIPLES OF ARMAMENT

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B2: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

MODULE 51 — WEAPONS SYSTEMS

Category A: 24 multi-choice and 0 essay question. Time allowed 30 minutes.

Category B1: 28 multi-choice and 0 essay question. Time allowed 35 minutes.

Category B2: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

MODULE 52 — OPERATIONAL ATTACK SYSTEMS

Category B1: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

Category B2: 80 multi-choice and 0 essay question. Time allowed 100 minutes.

MODULE 53 — SURVEILLANCE AND ELECTRONIC WARFARE

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

Category B2: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

MODULE 54 — CREW SAFETY

Category A: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

Category B1: 20 multi-choice and 0 essay question. Time allowed 25 minutes.

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

MODULE 55 — MILITARY COMMUNICATION SYSTEMS

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

☐ AMC

Superseded

Appendix III to DASR 66 - Military Aircraft Type Training and Examination Standard, and On-the-Job Training (OJT)

☐ AMC ☐ AMC1 ☐ GM

1. **General** ☐ AMC

Military Aircraft Type Training shall consist of theoretical training and examination, and, except for the Category C ratings, practical training and assessment. Where Military Aircraft Type Training includes military-specific systems, the prerequisite is that the student shall have gained the relevant 50-series modules (or sub-modules) of DASR 66 Appendix I.

a. Theoretical training and examination shall comply with the following requirements:

i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.

ii. Shall comply with the standard described in paragraph 3.1 and 4 of this Appendix III, except as permitted by the differences training described below.

iii. In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by the MAA.

iv. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

b. Practical training and assessment shall comply with the following requirements:

i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.

ii. Shall comply with the standard described in paragraph 3.2 and 4 of this Appendix III, except as permitted by the differences training described below.

iii. Shall include a representative cross section of maintenance activities relevant to the aircraft type.

iv. Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.

v. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

c. Differences training ☐ **AMC**

i. Differences training is the training required in order to cover the differences between two different Military Aircraft Type Ratings of the same manufacturer as determined by the MAA.

ii. Differences training has to be defined on a case-by-case basis taking into account the requirements contained in this Appendix III in respect of both theoretical and practical elements of Military Aircraft Type Rating training.

iii. A Military Aircraft Type Rating shall only be endorsed on a MAML after differences training when the applicant also complies with one of the following conditions:

– having already endorsed on the MAML the Military Aircraft Type Rating from which the differences are being identified, or

Superseded

– having completed the Military Aircraft Type Training requirements for the aircraft from which the differences are being identified.

2. **Military Aircraft Type Training levels**

The three levels listed below define the objectives, the depth of training and the level of knowledge that the training is intended to achieve.

Level 1: A brief overview of the airframe, systems and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual/Instructions for Continuing Airworthiness.

Course objectives: Upon completion of Level 1 training, the student will be able to:

a. provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant;

b. identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;

c. define the general layout of the aircraft's major systems;

d. define the general layout and characteristics of the powerplant;

e. identify special tooling and test equipment used with the aircraft.

Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.

Course objectives: In addition to the information contained in the Level 1 training, at the completion of Level 2 training, the student will be able to:

a. understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;

b. recall the safety precautions to be observed when working on or near the aircraft, powerplant, systems and armaments;

c. describe systems and aircraft handling particularly access, power availability and sources;

d. identify the locations of the principal components;

e. explain the normal functioning of each major system, including terminology and nomenclature;

f. perform the procedures for servicing associated on aircraft systems;

g. demonstrate proficiency in interpretation of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/ CDL or National equivalent;

h. demonstrate the use, interpretation and application of appropriate documentation including instructions for continuing airworthiness, maintenance manual, illustrated parts catalogue, etc.

Superseded

Level 3: Detailed description, operation, component location, removal/installation and BITE and troubleshooting procedures to maintenance manual level.

Course objectives: In addition to the information contained in Level 1 and Level 2 training, at the completion of Level 3 training, the student will be able to:

a. demonstrate a theoretical knowledge of aircraft systems and structures and interrelationships with other systems, provide a detailed description of the subject using theoretical fundamentals and specific examples and to interpret results from various sources and measurements and apply corrective action where appropriate;

b. perform system, powerplant, component and functional checks as specified in the aircraft maintenance manual;

c. demonstrate the use, interpretation and application of appropriate documentation including structural repair manual, troubleshooting manual, etc.;

d. correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level;

e. describe procedures for replacement of components specific to aircraft type.

3. **Military Aircraft Type Training standard**

Although Military Aircraft Type Training includes both theoretical and practical elements, courses can be approved for the theoretical element, the practical element or for a combination of both.

3.1 Theoretical element

a. Objective:
On completion of a theoretical training course the student shall be able to demonstrate, to the levels identified in the DASR 66 Appendix III syllabus, the detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

b. Level of training:
Training levels are those levels defined in point 2 above.

After the first type course for Category C certifying staff, all subsequent courses need only be to level 1.

During a level 3 theoretical training, Level 1 and 2 training material may be used to teach the full scope of the chapter if required. However, during the training the majority of the course material and training time shall be at Level 3.

c. Duration:
NOT APPLICABLE.

d. Justification of course duration: ☐ **AMC**

Training courses carried out in an MTO shall justify their hour duration and the coverage of the full syllabus by a training needs analysis based on:

Superseded

- the design of the aircraft type, its maintenance needs and the types of operation,

- detailed analysis of applicable chapters — see contents table in point 3.1(e) below,

- detailed competency analysis showing that the objectives as stated in point 3.1(a) above are fully met.

Course duration shall be approved by the MAA.

Similarly, tuition hours of differences courses or other training course combinations (such as combined B1/B2 courses), and in cases of theoretical Military Aircraft Type Training courses, these shall be justified by the training needs analysis as described above.

In addition, the course documentation must describe and justify the following:

- The minimum attendance required by the student, in order to meet the objectives of the course.

- The maximum number of hours of training per day, taking into account pedagogical and human factors principles.

If the minimum attendance required is not met, the certificate of recognition shall not be issued. Additional training may be provided by the MTO in order to meet the minimum attendance time.

e. Content:

As a minimum, the elements in the Syllabus (see table below) that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes, etc. shall also be included

Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters turbine		Helicopters piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Introduction module:									
05 Time limits/maintenance checks	1	1	1	1	1	1	1	1	1
06 Dimensions/Areas (MTOM, etc.)	1	1	1	1	1	1	1	1	1

Superseded

07 Lifting and Shoring	1	1	1	1	1	1	1	1	1
08 Levelling and weighing	1	1	1	1	1	1	1	1	1
09 Towing and taxiing	1	1	1	1	1	1	1	1	1
10 Parking/mooring, Storing and Return to Service	1	1	1	1	1	1	1	1	1
11 Placards and Markings	1	1	1	1	1	1	1	1	1
12 Servicing	1	1	1	1	1	1	1	1	1
14 Product loading and off loading	1	1	1	1	1	1	1	1	1
20 Standard practices including armament safety — only type particular	1	1	1	1	1	1	1	1	1
Helicopters									
18 Vibration and Noise Analysis (Blade tracking)	-	-	-	-	3	1	3	1	-
25 Emergency Flotation Equipment	-	-	-	-	3	1	3	1	1
53 Airframe Structure (Helicopter)	-	-	-	-	3	1	3	1	-
60 Standard Practices Rotor	-	-	-	-	3	1	3	1	-

Superseded

62 Rotors	-	-	-	-	3	1	3	1	1
62A Rotors — Monitoring and indicating	-	-	-	-	3	1	3	1	3
63 Rotor Drives	-	-	-	-	3	1	3	1	1
63A Rotor Drives — Monitoring and indicating	-	-	-	-	3	1	3	1	3
64 Tail Rotor	-	-	-	-	3	1	3	1	1
64A Tail rotor — Monitoring and indicating	-	-	-	-	3	1	3	1	3
65 Tail Rotor Drive	-	-	-	-	3	1	3	1	1
65A Tail Rotor Drive — Monitoring and indicating	-	-	-	-	3	1	3	1	3
66 Folding Blades/Pylon	-	-	-	-	3	1	3	1	-
67 Rotors Flight Control	-	-	-	-	3	1	3	1	-
Airframe structures									
27A Flight Control Surfaces (All)	3	1	3	1	-	-	-	-	1
51 Standard practices and structures (damage classification, assessment and repair)	3	1	3	1	-	-	-	-	1

Superseded

52 Doors	3	1	3	1	-	-	-	-	1
53 Fuselage	3	1	3	1	-	-	-	-	1
54 Nacelles/Pylons	3	1	3	1	-	-	-	-	1
55 Stabilisers	3	1	3	1	-	-	-	-	1
56 Windows and canopies	3	1	3	1	-	-	-	-	1
57 Wings	3	1	3	1	-	-	-	-	1
06 Zonal and Station Identification Systems.	1	1	1	1	1	1	1	1	1
Airframe systems:									
21 Air Conditioning	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	3	1	3	1	2
21B Pressurisation	3	1	3	1	3	1	3	1	3
21C Safety and Warning Devices	3	1	3	1	3	1	3	1	3
22 Autoflight	2	1	2	1	2	1	2	1	3

Superseded

23 Communications	2	1	2	1	2	1	2	1	3
24 Electrical Power	3	1	3	1	3	1	3	1	3
25 Equipment and Furnishings	3	1	3	1	3	1	3	1	1
25A Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	3
26 Fire Protection	3	1	3	1	3	1	3	1	3
27 Flight Controls	3	1	3	1	3	1	3	1	2
27A Sys. Operation: Electrical/Fly-by-Wire	3	1	-	-	-	-	-	-	3
28 Fuel Systems	3	1	3	1	3	1	3	1	2
28A Fuel Systems — Monitoring and indicating	3	1	3	1	3	1	3	1	3
29 Hydraulic Power	3	1	3	1	3	1	3	1	2
29A Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3	1	3
30 Ice and Rain Protection	3	1	3	1	3	1	3	1	3
31 Indicating/Recording Systems	3	1	3	1	3	1	3	1	3

Superseded

31A Instrument Systems	3	1	3	1	3	1	3	1	3
32 Landing Gear	3	1	3	1	3	1	3	1	2
32A Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3
33 Lights	3	1	3	1	3	1	3	1	3
34 Navigation	2	1	2	1	2	1	2	1	3
35 Oxygen	3	1	3	1	-	-	-	-	2
36 Pneumatic	3	1	3	1	3	1	3	1	2
36A Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3
37 Vacuum	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	-	-	-	-	2
40 Operational attack functions	2	1	2	1	2	1	-	-	3
42 Integrated modular avionics	2	1	2	1	2	1	2	1	3
42A Cross-technical attack functions	2	1	2	1	2	1	-	-	3

Superseded

44 Cabin Systems	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	-	-	3
46 Information Systems	2	1	2	1	2	1	2	1	3
48 In-Flight refueling tanker	3	1	-	-	3	1	-	-	2
48A In-Flight refueling tanker – Monitoring and Indicating	3	1	-	-	3	1	-	-	3
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	1
Turbine Engine									
70 Standard Practices – Engines	3	1	-	-	3	1	-	-	1
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	3	1	-	-	3	1	-	-	1
70B Engine Performance	3	1	-	-	3	1	-	-	1
71 Powerplant	3	1	-	-	3	1	-	-	1
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	-	-	3	1	-	-	1
73 Engine Fuel and Control	3	1	-	-	3	1	-	-	1

Superseded

73A Full Authority Digital Engine Control (FADEC)	3	1	-	-	3	1	-	-	3
74 Ignition	3	1	-	-	3	1	-	-	3
75 Air	3	1	-	-	3	1	-	-	1
76 Engine controls	3	1	-	-	3	1	-	-	1
77 Engine Indicating Systems	3	1	-	-	3	1	-	-	3
78 Exhaust	3	1	-	-	3	1	-	-	1
79 Oil	3	1	-	-	3	1	-	-	1
80 Starting	3	1	-	-	3	1	-	-	1
82 Water Injections	3	1	-	-	3	1	-	-	1
83 Accessory Gear Boxes	3	1	-	-	3	1	-	-	1
84 Propulsion Augmentation	3	1	-	-	3	1	-	-	1
Auxiliary Power Units (APUs)									
49 Auxiliary Power Units (APUs)	3	1	-	-	3	1	-	-	2

Superseded

Piston Engine									
70 Standard Practices — Engines	-	-	3	1	-	-	3	1	1
70A Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/ Turbocharging, Lubrication Systems).	-	-	3	1	-	-	3	1	1
70B Engine Performance	-	-	3	1	-	-	3	1	1
71 Powerplant	-	-	3	1	-	-	3	1	1
73 Engine Fuel and control	-	-	3	1	-	-	3	1	1
73A FADEC	-	-	3	1	-	-	3	1	3
74 Ignition	-	-	3	1	-	-	3	1	3
76 Engine Control	-	-	3	1	-	-	3	1	1
77 Engine Indication Systems	-	-	3	1	-	-	3	1	3
79 Oil	-	-	3	1	-	-	3	1	1
80 Starting	-	-	3	1	-	-	3	1	1
81 Turbines	-	-	3	1	-	-	3	1	1

Superseded

82 Water Injection	-	-	3	1	-	-	3	1	1
83 Accessory Gear boxes	-	-	3	1	-	-	3	1	1
84 Propulsion Augmentation	-	-	3	1	-	-	3	1	1
Propellers									
60A Standard Practices — Propeller	3	1	3	1	-	-	-	-	1
61 Propellers/Propulsion	3	1	3	1	-	-	-	-	1
61A Propeller Construction	3	1	3	1	-	-	-	-	-
61B Propeller Pitch Control	3	1	3	1	-	-	-	-	-
61C Propeller Synchronising	3	1	3	1	-	-	-	-	1
61D Propeller Electronic control	3	1	3	1	-	-	-	-	3
61E Propeller Ice Protection	3	1	3	1	-	-	-	-	-
61F Propeller Maintenance	3	1	3	1	-	-	-	-	1
Military-Specific Systems									

Superseded

92 Radar	2	1	2	1	2	1	-	-	3
93 Surveillance	2	1	2	1	2	1	-	-	3
94 Weapon System	2	1	2	1	2	1	-	-	3
95 Crew Escape and Safety (partially covered by 25 for Helicopters)	3	1	3	1	3	1	3	1	2
97 Image Recording	2	1	2	1	2	1	-	-	2
99 Electronic Warfare	2	1	2	1	2	1	-	-	3

f. Multimedia Based Training (MBT) methods may be used to satisfy the theoretical training element either in the classroom or in a virtual controlled environment subject to the acceptance of the MAA approving the training course.

3.2 Practical element AMC

a. Objective:

The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks. It includes the awareness of the use of all technical literature and documentation for the aircraft, the use of specialist/special tooling and test equipment for performing removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

Content:

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

Tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively

Superseded

simple tasks may be included, other more complex tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: TroubleShooting.

Chapters	B1/ B2	B1					B2				
	LOC	FOT	SGH	R/ I	MEL	TS	FOT	SGH	R/ I	MEL	TS
Introduction module:											
05 Time limits/maintenance checks	X/X	-	-	-	-	-	-	-	-	-	-
06 Dimensions/Areas (MTOM, etc.)	X/X	-	-	-	-	-	-	-	-	-	-
07 Lifting and Shoring	X/X	-	-	-	-	-	-	-	-	-	-
08 Levelling and weighing	X/X	-	X	-	-	-	-	X	-	-	-
09 Towing and taxiing	X/X	-	X	-	-	-	-	X	-	-	-
10 Parking/mooring, Storing and Return to Service	X/X	-	X	-	-	-	-	X	-	-	-
11 Placards and Markings	X/X	-	-	-	-	-	-	-	-	-	-
12 Servicing	X/X	-	X	-	-	-	-	X	-	-	-

Superseded

14 Product loading and off loading	X/X	-	X	-	-	-	-	X	-	-	-
20 Standard practices including armament safety — only type particular	X/X	-	X	-	-	-	-	X	-	-	-
Helicopters:											
18 Vibration and Noise Analysis (Blade tracking)	X/-	-	-	-	-	X	-	-	-	-	-
25 Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	-	-	-
53 Airframe Structure (Helicopter) Note: covered under Airframe structures											
60 Standard Practices Rotor — only type specific	X/X	-	X	-	-	-	-	X	-	-	-
62 Rotors	X/-	-	X	X	-	X	-	-	-	-	-
62A Rotors — Monitoring and indicating	X/X	X	X	X	X	X	-	-	X	-	X
63 Rotor Drives	X/-	X	-	-	-	X	-	-	-	-	-
63A Rotor Drives — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
64 Tail Rotor	X/-	-	X	-	-	X	-	-	-	-	-
64A Tail rotor -Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X

Superseded

65 Tail Rotor Drive	X/-	X	-	-	-	X	-	-	-	-	-
65A Tail Rotor Drive — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
66 Folding Blades/Pylon	X/-	X	X	-	-	X	-	-	-	-	-
67 Rotors Flight Control	X/-	X	X	-	X	X	-	-	-	-	-
Airframe structures:											
27A Flight Control Surfaces	X/-	-	-	-	-	X	-	-	-	-	-
51 Standard Practices and Structures (damage classification, assessment and repair)											
52 Doors	X/X	X	X	-	-	-	-	X	-	-	-
53 Fuselage	X/-	-	-	-	-	X	-	-	-	-	-
54 Nacelles/Pylons	X/-	-	-	-	-	-	-	-	-	-	-
55 Stabilisers	X/-	-	-	-	-	-	-	-	-	-	-
56 Windows and canopies	X/-	-	-	-	-	X	-	-	-	-	-
57 Wings	X/-	-	-	-	-	-	-	-	-	-	-

Superseded

Airframe systems:											
21 Air Conditioning	X/X	X	X	-	X	X	X	X	-	X	X
21A Air Supply	X/X	X	-	-	-	-	X	-	-	-	-
21B Pressurisation	X/X	X	-	-	X	X	X	-	-	X	X
21C Safety and warning Devices	X/X	-	X	-	-	-	-	X	-	-	-
22 Autoflight	X/X	-	-	-	X	-	X	X	X	X	X
23 Communications	X/X	-	X	-	X	-	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	-	-	X	X	X	-	-
25A Electronic Equipment including emergency equipment	X/X	X	X	X	-	-	X	X	X	-	-
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	-	-	-	-
27A Sys. Operation: Electrical/Fly-by-Wire	X/X	X	X	X	X	-	X	-	X	-	X

Superseded

28 Fuel Systems	X/X	X	X	X	X	X	X	X	-	X	-
28A Fuel Systems — Monitoring and indicating	X/X	X	-	-	-	-	X	-	X	-	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	-	X	-
29A Hydraulic Power — Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
30 Ice and Rain Protection	X/X	X	X	-	X	X	X	X	-	X	X
31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	-
32A Landing Gear — Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
33 Lights	X/X	X	X	-	X	-	X	X	X	X	-
34 Navigation	X/X	-	X	-	X	-	X	X	X	X	X
35 Oxygen	X/-	X	X	X	-	-	X	X	-	-	-
36 Pneumatic	X/-	X	-	X	X	X	X	-	X	X	X

Superseded

36A Pneumatic — Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/-	X	-	X	X	X	-	-	-	-	-
38 Water/Waste	X/-	X	X	-	-	-	X	X	-	-	-
40 Operational attack functions	X/X	-	-	-	-	-	X	X	X	X	X
42 Integrated modular avionics	X/X	-	-	-	-	-	X	X	X	X	X
42A Cross-technical attack functions	X/X	X	-	-	-	-	X	X	X	X	X
44 Cabin Systems	X/X	X	-	-	-	-	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X	X	X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	-	-	-	-	-	X	-	X	X	X
48 In-Flight refueling tanker	X/X	X	X	X	X	X	X	X	-	X	-
48A In-Flight refueling tanker – Monitoring and Indicating	X/X	X	X	X	X	X	X	X	X	X	X
50 Cargo and Accessory Compartments	X/X	-	X	-	-	-	-	-	-	-	-
Turbine Engines:											

Superseded

70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-
72 Engine Turbine/Turbo Prop/Ducted Fan/ Unducted fan	X/-	-	-	-	-	-	-	-	-	-	-
73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X
74 Ignition	X/X	X	-	-	-	-	X	-	-	-	-
75 Air	X/-	-	-	X	-	X	-	-	-	-	-
76 Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77 Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78 Exhaust	X/-	X	-	-	X	-	-	-	-	-	-

Superseded

79 Oil	X/-	-	X	X	-	-	-	-	-	-	-
80 Starting	X/-	X	-	-	X	X	-	-	-	-	-
82 Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83 Accessory Gearboxes	X/-	-	X	-	-	-	-	-	-	-	-
84 Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Auxiliary Power Units (APUs):											
49 Auxiliary Power Units (APUs)	X/-	X	X	-	-	X	-	-	-	-	-
Piston Engines:											
70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-

Superseded

73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X
74 Ignition	X/X	X	-	-	-	-	X	-	-	-	-
76 Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77 Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78 Exhaust	X/-	X	-	-	X	X	-	-	-	-	-
79 Oil	X/-	-	X	X	-	-	-	-	-	-	-
80 Starting	X/-	X	-	-	X	X	-	-	-	-	-
81 Turbines	X/-	X	X	X	-	X	-	-	-	-	-
82 Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83 Accessory Gearboxes	X/-	-	X	X	-	-	-	-	-	-	-
84 Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Propellers:											

Superseded

60A Standard Practices — Propeller	-	-	-	X	-	-	-	-	-	-	-
61 Propellers/Propulsion	X/X	X	X	-	X	X	-	-	-	-	-
61A Propeller Construction	X/X	-	X	-	-	-	-	-	-	-	-
61B Propeller Pitch Control	X/-	X	-	X	X	X	-	-	-	-	-
61C Propeller Synchronising	X/-	X	-	-	-	X	-	-	-	X	-
61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/-	X	-	X	X	X	-	-	-	-	-
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X
Military-Specific Systems											
92 Radar	X/X	X	X	X	X	-	X	X	X	X	X
93 Surveillance	X/X	X	X	X	X	-	X	X	X	X	X
94 Weapon system	X/X	X	X	X	X	-	X	X	X	X	X
95 Crew escape and Safety	X/X	X	X	X	X	X	X	X	X	X	-

Superseded

97 Image recording	X/X	X	X	X	X	-	X	X	X	X	X
99 Electronic Warfare	X/X	X	X	X	X	-	X	X	X	X	X

4. **Military Aircraft Type Training examination and assessment standard**

4.1 Theoretical element examination standard

After the theoretical portion of the Military Aircraft Type Training has been completed, a written examination shall be performed, which shall comply with the following:

a. Format of the examination is of the multi-choice type. Each multi-choice question shall have at least 3 alternative answers of which only one shall be the correct answer. The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.

b. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.

c. In numerical questions, the incorrect answers shall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They shall not be mere random numbers.

d. The level of examination for each chapter (*) shall be the one defined in point 2 "Military Aircraft Type Training levels". However, the use of a limited number of questions at a lower level is acceptable.

e. The examination shall be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate's ability to interpret technical documents.

f. The number of questions shall be at least 1 question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:

i. the effective training hours spent teaching at that chapter and level,

ii. the learning objectives as given by the training needs analysis.

The MAA will assess the number and the level of the questions when approving the course.

g. The minimum examination pass mark is 75 %. When the Military Aircraft Type Training examination is split in several examinations, each examination shall be passed with at least a 75 % mark. In order to be possible to achieve exactly a 75 % pass mark, the number of questions in the examination shall be a multiple of 4.

h. Penalty marking (negative points for failed questions) is not to be used.

i. End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

(*) For the purpose of this point 4, a "chapter" means each one of the rows preceded by a number in the table contained in point 3.1(e).

Superseded

4.2 Practical element assessment standard ☐ **AMC**

After the practical element of the Military Aircraft Type Training has been completed, an assessment must be performed, which must comply with the following:

a. The assessment shall be performed by designated assessors appropriately qualified.

b. The assessment shall evaluate the knowledge and skills of the trainee.

5. **Type examination standard**

NOT APPLICABLE.

6. **On the Job Training** ☐ **AMC**

On the Job Training (OJT) shall be approved by the MAA who has issued the MAML.

It shall be conducted at and under the control of a maintenance organisation appropriately approved for the maintenance of the particular aircraft type and shall be assessed by designated assessors appropriately qualified.

It shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

a. Objective:

The objective of OJT is to gain the required competence and experience in performing safe maintenance.

b. Content:

OJT shall cover a cross section of tasks acceptable to the MAA. The OJT tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex maintenance tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Each task shall be signed off by the student and countersigned by a designated supervisor. The tasks listed shall refer to an actual job card/work sheet, etc.

The final assessment of the completed OJT is mandatory and shall be performed by a designated assessor, appropriately qualified.

The following data shall be addressed on the OJT worksheets/logbook:

1. Name of Trainee;

2. Date of Birth;

3. Service Number or Employee Number

4. Approved Maintenance Organisation;

5. Location;

6. Name of supervisor(s) and assessor, (including MAML number if applicable);

7. Date of task completion;

Superseded

8. Description of task and job card/work order/tech log, etc.;

9. Aircraft type and aircraft registration;

10. Military Aircraft Type Rating applied for.

In order to facilitate the verification by the MAA, demonstration of the OJT shall consist of:

(i) detailed worksheets/logbook and

(ii) a compliance report demonstrating how the OJT meets the requirement of DASR 66.

Appendix IV to DASR 66 - Experience requirements for an addition to a DASR 66 Military Aircraft Maintenance Licence

The table below shows the experience requirements for adding a new category or subcategory to an existing DASR 66 MAML including military-specific modules.

The experience shall be practical maintenance experience on operating aircraft in the subcategory relevant to the application.

The experience requirement will be reduced by 50% if the applicant has completed an approved DASR 147 course relevant to the subcategory.

To From	A1	A2	A3	A4	B1.1	B1.2	B1.3	B1.4	B2
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	2 years
A4	6 months	6 months	6 months	—	2 years	1 year	2 years	6 months	2 years
B1.1	None	6 months	6 months	6 months	—	6 months	6 months	6 months	1 year
B1.2	6 months	None	6 months	6 months	2 years	—	2 years	6 months	2 years
B1.3	6 months	6 months	None	6 months	6 months	6 months	—	6 months	1 year

Superseded

B1.4	6 months	6 months	6 months	None	2 years	6 months	2 years	—	2 years
B2	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	—

Appendix V to DASR 66 – Application Form – DASR Form 19

DASR Form 19 is contained in the DASR Forms document.

Appendix VI to DASR 66 – Military Aircraft Maintenance Licence (MAML) – DASR Form 26

DASR Form 26 is contained in the DASR Forms document.

Superseded

DASR 66 Annexes/Appendices

SECTION A

66.A.1 - Scope

This section defines the Military Aircraft Maintenance Licence (MAML) and establishes the requirements for application, issue and continuation of its validity.

66.A.3 - MAML categories

☐ **GM**

(a) Military Aircraft Maintenance Licences include the following categories:

– Category A

– Category B1

– Category B2

– Category C

(b) Categories A and B1 are subdivided into subcategories relative to combinations of aeroplanes, helicopters, turbine and piston engines. These subcategories are:

– A1 and B1.1 Aeroplanes Turbine

– A2 and B1.2 Aeroplanes Piston

– A3 and B1.3 Helicopters Turbine

– A4 and B1.4 Helicopters Piston

(c) NOT APPLICABLE.

66.A.5 - Aircraft groups

All military aircraft shall be considered as complex motor-powered aircraft.

66.A.10 - Application

☐ **AMC**

(a) An application for a MAML or change to such a licence shall be made on a DASR Form 19 (see Appendix V to DASR 66) in a manner established by the MAA and submitted thereto. ☐ **GM**

(b) NOT APPLICABLE.

Superseded

(c) In addition to the documents required in DASR 66.A.10(a) the applicant for additional basic categories or subcategories to a MAML shall submit their current MAML to the MAA together with the DASR Form 19. ☐ **GM**

(d) NOT APPLICABLE.

(e) NOT APPLICABLE.

(f) Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application. ☐ **GM**

66.A.15 - Eligibility

An applicant for a MAML shall be at least 18 years of age.

66.A.20 - Privileges

☐ **GM**

(a) The following privileges shall apply: ☐ **GM**

1. A Category A MAML permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in DASR 145.A.35. The certification privileges shall be restricted to work that the licence holder has personally performed in the DASR 145 AMO that issued the certification authorisation. ☐ **GM1**

2. A Category B1 MAML shall permit the holder to issue certificates of release to service and to act as B1 support staff for the following:

   – maintenance performed on aircraft structure, powerplant, mechanical systems and electrical systems, and

   – work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting. ☐ **GM**

Category B1 includes the corresponding A subcategory.

3. A Category B2 MAML shall permit the holder:

   i. to issue certificates of release to service and to act as B2 support staff for the following:

   – maintenance performed on avionic and electrical systems, and

   – electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability

   ii. to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in DASR 145.A.35. This certification privilege shall be restricted to work that the MAML

Superseded

holder has personally performed in the AMO which issued the certification authorisation and limited to the Military Aircraft Type Ratings already endorsed in the B2 MAML. ☐ **GM1**

Category B2 does not include any A subcategory. ☐ **GM2**

4. NOT APPLICABLE.

5. A Category C MAML shall permit the holder to issue certificates of release to service for aircraft following base maintenance on aircraft. The privileges apply to the aircraft in its entirety.

6. Categories A, B1 and B2 MAMLs can have extensions (DASR 66.A.52) to address one or more of the military-specific topics included in Appendix I to DASR 66 (Modules 50 - 55). These shall permit the holder to issue certificates of release to service and act as support staff appropriate to the basic knowledge gained from all modules and as approved by the MAA for maintenance performed on armament, rescue and escape systems and other military-specific systems.

(b) The holder of a MAML shall not exercise its privileges unless: ☐ **AMC**

1. in compliance with the applicable requirements of DASR M and DASR 145; and

2. in the preceding 2-year period the holder has, either had 6 months of maintenance experience in accordance with the privileges granted by the MAML or, met the provision for the issue of the appropriate privileges; and ☐ **AMC** ☐ **AMC1** ☐ **GM** ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4**

3. they have the adequate competence to certify maintenance on the corresponding aircraft; and ☐ **AMC**

4. they are able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written. ☐ **GM**

66.A.25 - Basic knowledge requirements

☐ **AMC**

(a) An applicant for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML, shall demonstrate by examination a level of knowledge in the appropriate subject modules in accordance with Appendix I. The examination shall be conducted either by an MTO appropriately approved in accordance with DASR 147 or by the MAA. ☐ **GM**

(b) The training courses and examinations shall be passed within 10 years prior to the application for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML. Should this not be the case, examination credits may however be obtained in accordance with point (c).

(c) The applicant may apply to the MAA for full or partial examination credit to the basic knowledge requirements for:

1. basic knowledge examinations that do not meet the requirement described in point (b) above; and

Superseded

2. any other technical qualification considered by the MAA to be equivalent to the knowledge standard of this DASR. If the applicant holds an EASA Part 66 licence, the MAA may accept the EASA licence as a basis, only requiring additional training to cover the differences between the EASA licence and the MAML requirements. ☐ **AMC**

Credits shall be granted in accordance with Annex A.

(d) Credits expire 10 years after they were granted to the applicant by the MAA. The applicant may apply for new credits after expiration. ☐ **GM**

(e) Modules 50-55 shall be used to provide extensions to a MAML for military-specific systems. Module 53 includes sub-modules that can also be used to provide extensions to a MAML for military-specific systems.

66.A.30 - Basic experience requirements

(a) An applicant for a MAML shall have acquired: ☐ **GM**

1A. for Category A:

1. 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or

2. 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 6 months of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147; or ☐ **GM**

4. 1 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

1B. for Subcategories B1.2 and B1.4:

1. 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or

2. 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 1 year of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of DASR 147 Appendix I) approved in accordance with DASR 147; or

4. 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended

Superseded

minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

The 2 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

2. for Categories B2 and Subcategories B1.1 and B1.3:

1. 5 years of practical maintenance experience on operating military aircraft if the applicant has no previous relevant technical training; or

2. 3 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or

3. 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147; or

4. 3 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of Appendix 1 to DASR 147) approved in accordance with DASR 147.

The 3 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

3. for Category C:

1. 3 years of experience exercising Category B1.1, B1.3 or B2 privileges or as support staff according to DASR 145.A.35, or a combination of both; or

2. 5 years of experience exercising Category B1.2 or B1.4 privileges or as support staff according to DASR 145.A.35, or a combination of both.

4. NOT APPLICABLE.

5. for Category C obtained through the academic route: an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution, recognised by the MAA, plus: ☐ **AMC**

1. 3 years of experience working in a military aircraft maintenance environment on a representative selection of tasks directly associated with military aircraft maintenance including 6 months of observation of base maintenance tasks; or

2. experience as detailed by the MAA but not less than 6 months of observation of base maintenance tasks. ☐ **AMC** ☐ **AMC1**

(b) An applicant for an additional category or subcategory to a MAML shall have a minimum aircraft maintenance experience requirement appropriate to the additional category or subcategory of MAML applied for as defined in Appendix IV to DASR 66.

Superseded

(c) The experience shall be practical and involve a representative cross section of maintenance tasks on aircraft.

(d) At least 1 year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial MAML is sought. For subsequent category/ subcategory additions to an existing MAML, the additional recent maintenance experience required may be less than 1 year, but shall be at least 3 months. The required experience shall be dependent upon the difference between the MAML category/subcategory held and applied for. Such additional experience shall be typical of the new MAML category/ subcategory sought. ☐ **AMC**

(e) Notwithstanding paragraph (a), aircraft maintenance experience gained outside a military aircraft maintenance environment may be accepted when such maintenance is equivalent to that required by this DASR as established by the MAA. Additional experience of military aircraft maintenance shall, however, be required to ensure adequate understanding of the military aircraft maintenance environment. ☐ **AMC**

(f) Experience shall have been acquired within the 10 years preceding the application for a MAML or the addition of a category or subcategory to such a MAML.

66.A.40 - Continued validity of the Military Aircraft Maintenance Licence

☐ **GM**

(a) The MAML shall be issued for an unlimited duration. It shall remain valid subject to the holder remaining in compliance with the requirements in this DASR and the MAML not being suspended, surrendered or revoked.

(b) Upon suspension, surrendering or revocation the MAML shall be returned to the MAA.

(c) Any certification privilege based upon a MAML becomes invalid as soon as the MAML is invalid.

(d) The MAML is only valid:

1. when issued and/or changed by the MAA; and
2. when the holder has signed the document.

(e) If the MAML holder's name, service number or state ID number change, the MAML shall be resubmitted to the MAA within 30 days. ☐ **GM**

66.A.45 - Military Aircraft Type Ratings

☐ **AMC**

(a) In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings, following satisfactory completion of the relevant Military Aircraft Type Training within an DASR 147 approved MTO.

For Category A, no Military Aircraft Type Rating is required, subject to compliance with the task training requirements of DASR 145.A.35.

Superseded

(b) The issuing of a Military Aircraft Type Rating requires the satisfactory completion of the relevant Category B1, B2 or C Military Aircraft Type Training. Where relevant, the MAA may accept an appropriate EASA aircraft type rating as evidence of having undertaken a partial or full equivalent to Military Aircraft Type Training. ☐ **GM**

(c) In addition to the requirement of point (b), the issuing of the first Military Aircraft Type Rating within a given category/sub-category requires satisfactory completion of the corresponding On the Job Training, as described in Appendix III to DASR 66. Any subsequent Military Aircraft Type Rating within a given category/sub-category may require further On the Job Training as defined by the MAA.

(d) NOT APPLICABLE.

(e) NOT APPLICABLE.

(f) NOT APPLICABLE.

(g) NOT APPLICABLE.

66.A.50 - Limitations

(a) Limitations introduced on a MAML are exclusions from the certification privileges. If a new Military Aircraft Type Rating is gained, the MAML limitation(s) shall continue to apply to the new Military Aircraft Type Rating. ☐ **GM**

(b) NOT APPLICABLE.

(c) Any limitation shall be removed upon satisfactory completion of the relevant requirements of DASR 66 or as defined in the applicable conversion report.

66.A.52 - Extensions

Extensions introduced on a MAML may allow additional certification privileges. ☐ **AMC**

66.A.55 - Evidence of qualification

Personnel exercising certification privileges as well as support staff shall produce their MAML, as evidence of qualification, within 72 hours upon request by an official of the MAA.

66.A.70 - Conversion provisions

☐ **GM**

The holder of a licence or other qualification for the maintenance of aircraft gained prior to, or an individual undergoing a process to gain such a licence or other qualification prior to, a date established in national regulation shall follow the procedures for conversion into a MAML as set out in Annex B to DASR 66. ☐ **GM**

(a) NOT APPLICABLE.

(b) NOT APPLICABLE.

Superseded

(c) NOT APPLICABLE.

(d) NOT APPLICABLE.

DASR 66 Annexes/Appendices

Annex A to DASR 66 - Examination Credit Procedures (AUS)

This Annex provides the procedures for granting examination credits referred to in DASR 66.A.25(c).

1. **General**

   a. The MAA may only grant credit on the basis of a credit report prepared in accordance with paragraph 2.

   b. The credit report shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.

   c. Credit reports together with any change of these shall be dated and kept on record by the MAA.

2. **Examination credit report**

   a. The credit report shall include a comparison between:

      1. the modules, sub-modules, subjects and knowledge levels contained in Appendix I to DASR 66, as applicable; and

      2. the syllabus of the technical qualification concerned relevant to the particular category being sought.

      NOTE: This comparison shall state if compliance is demonstrated and contain the justifications for each statement.

   b. Credit for examinations, other than basic knowledge examinations carried out in Maintenance Training Organisations approved in accordance with DASR 147, can only be granted by the MAA.

   c. No credit can be granted unless there is a statement of compliance against each module and sub-module, stating where, in the technical qualification, the equivalent standard can be found.

   d. The MAA shall check on a regular basis if changes to the credit report are required due to changes to the national qualification standard or Appendix I to DASR 66. Such changes shall be documented, dated and recorded.

3. **Examination credit validity**

   a. The MAA shall notify the applicant in writing of any credits granted together with the reference to the credit report used.

   b. Credits shall expire 10 years after they are granted.

Superseded

c. Upon expiration of the credits, the applicant may apply for new credits. The MAA shall continue the validity of the credits for an additional period of 10 years without further consideration if basic knowledge requirements defined in Appendix I have not been changed.

Annex B to DASR 66 - Licence Conversion Procedures (AUS)

This Annex provides the procedures for the conversion of military certifying staff qualifications referred to in DASR 66.A.70 into MAMLs.

1. **General**

The MAA may only convert its own national licences or other military qualifications, without prejudice to bilateral agreements, considered valid prior to the entry into national regulation of the applicable requirements of DASR 66.

The MAA may only perform the conversion in accordance with a conversion report established pursuant to this Annex B, paragraph 2 or paragraph 3, as applicable.

Conversion reports shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.

Conversion reports together with any change of these shall be kept on record by the MAA.

2. Conversion report for licences or other qualifications

a. The conversion report for licences or other qualifications into a MAML shall describe the scope of each type of qualification, including the associated national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.

b. The conversion report shall show for each type of qualification referred to in point (a):

1. to which MAML it will be converted; and
2. which limitations/extensions shall be added; and
3. the conditions to remove the limitations, specifying the DASR 66 Appendix I module/subjects on which examination is needed to remove the limitations and obtain a full MAML, or to include an additional (sub-) category. This shall include the modules defined in Appendix III not covered by the national qualification.

3. **Conversion report for Approved Maintenance Organisations authorisations**

This paragraph applies to the issuance of a MAML to maintenance personnel who hold an AMO authorisation allowing them to certify aircraft work but who do not hold a formal national qualification as described in this Annex B. ☐ **GM**

Appendix I to DASR 66 - Basic Knowledge Requirements

1. Knowledge levels for Category A, B1, B2 and C Military Aircraft Maintenance Licence

Basic knowledge for Categories A, B1 and B2 are indicated by knowledge levels (1, 2 or 3) against each applicable subject. Except for the Category C obtained by the academic route (DASR

Superseded

66.A.30(a)5 refers), Category C applicants shall meet either the Category B1 or the Category B2 basic knowledge levels.

The knowledge level indicators are defined on 3 levels as follows:

- LEVEL 1: A familiarisation with the principal elements of the subject.

Objectives:

a. The applicant should be familiar with the basic elements of the subject.
b. The applicant should be able to give a simple description of the whole subject, using common words and examples.
c. The applicant should be able to use typical terms.

- LEVEL 2: A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge.

Objectives:

a. The applicant should be able to understand the theoretical fundamentals of the subject.
b. The applicant should be able to give a general description of the subject using, as appropriate, typical examples.
c. The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject.
d. The applicant should be able to read and understand sketches, drawings and schematics describing the subject.
e. The applicant should be able to apply their knowledge in a practical manner using detailed procedures.

- LEVEL 3: A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives:

a. The applicant should know the theory of the subject and interrelationships with other subjects.
b. The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.
c. The applicant should understand and be able to use mathematical formulae related to the subject.
d. The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
e. The applicant should be able to apply their knowledge in a practical manner using manufacturer’s instructions.
f. The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. Modularisation

Qualification on basic subjects for each MAML category or subcategory should be in accordance with the following matrix, where applicable subjects are indicated by an "X":

Superseded

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B2
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Avionics
1 Mathematics	X	X	X	X	X
2 Physics	X	X	X	X	X
3 Electrical Fundamentals	X	X	X	X	X
4 Electronic Fundamentals	X	X	X	X	X
5 Digital Techniques/ Electronic Instrument Systems	X	X	X	X	X
6	X	X	X	X	X

Superseded

Materials and Hardware					
7 Maintenance Practices	X	X	X	X	X
8 Basic Aerodynamics	X	X	X	X	X
9 Human Factors	X	X	X	X	X
10 Aviation Legislation	X	X	X	X	X
11a Turbine Aeroplane Aerodynamics, Structures and Systems	X				
11b Piston Aeroplane Aerodynamics, Structures and Systems		X			

Superseded

12 Helicopter Aerodynamics, Structures and Systems			X	X	
13 Aircraft Aerodynamics, Structures and Systems					X
14 Propulsion					X
15 Gas Turbine Engine	X		X		
16 Piston Engine		X		X	
17 Propeller	X	X			
50 Essential Principles of Armament	*	*	*	*	*

Superseded

51 Weapon Stores System	*	*	*	*	*
52 Operational Attack Systems	*	*	*	*	*
53 Surveillance and Electronic Warfare	*	*	*	*	*
54 Crew Safety	*	*	*	*	*
55 Military Communication Systems					*

* - see DASR 66.A.25(e) for qualification requirements on Modules 50-55 (military-specific systems)

MODULE 1 - MATHEMATICS

	Level		
	A	B1	B2

Superseded

1.1 Arithmetic Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes, square and cube roots.	1	2	2
1.2 Algebra (a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;	1	2	2
(b) Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second degree equations with one unknown; logarithms.	-	1	1
1.3 Geometry (a) Simple geometrical constructions;	-	1	1
(b) Graphical representation; nature and uses of graphs, graphs of equations/ functions;	2	2	2
(c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	-	2	2

MODULE 2 - PHYSICS

	Level		
	A	B1	B2
2.1 Matter Nature of matter: the chemical elements, structure of atoms, molecules; Chemical compounds; States: solid, liquid and gaseous; Changes between states.	1	1	1
2.2 Mechanics *2.2.1 Statics* Forces, moments and couples, representation as vectors;	1	2	1

Superseded

Centre of gravity; Elements of theory of stress, strain and elasticity: tension, compression, shear and torsion; Nature and properties of solid, fluid and gas; Pressure and buoyancy in liquids (barometers).			
2.2.2 Kinetics Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity); Rotational movement: uniform circular motion (centrifugal/ centripetal forces); Periodic motion: pendular movement; Simple theory of vibration, harmonics and resonance; Velocity ratio, mechanical advantage and efficiency.	1	2	1
2.2.3 Dynamics (a) Mass; Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;	1	2	1
(b) Momentum, conservation of momentum; Impulse; Gyroscopic principles; Friction: nature and effects, coefficient of friction (rolling resistance).	1	2	2
2.2.4 Fluid dynamics (a) Specific gravity and density;	2	2	2
(b) Viscosity, fluid resistance, effects of streamlining; Effects of compressibility on fluids; Static, dynamic and total pressure: Bernoulli's Theorem, Venturi effect.	1	2	1
2.3 Thermodynamics (a) Temperature: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;	2	2	2

Superseded

(b) Heat capacity, specific heat; Heat transfer: convection, radiation and conduction; Volumetric expansion; First and second law of thermodynamics; Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas; Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps; Latent heats of fusion and evaporation, thermal energy, heat of combustion.	-	2	2
2.4 Optics (Light) Nature of light; speed of light; Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses; Fibre optics.	-	2	2
2.5 Wave Motion and Sound Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves; Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.	-	2	2

MODULE 3 - ELECTRICAL FUNDAMENTALS

	Level		
	A	B1	B2
3.1 Electron Theory Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.	1	1	1
3.2 Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law;	1	2	2

Superseded

Conduction of electricity in solids, liquids, gases and a vacuum.			
3.3 Electrical Terminology The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	1	2	2
3.4 Generation of Electricity Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.	1	1	1
3.5 DC Sources of Electricity Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, Li-ion cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery; Construction, materials and operation of thermocouples; Operation of photo-cells.	1	2	2
3.6 DC Circuits Ohms Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply.	1	2	2
3.7 Resistance/Resistor (a) Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge;	-	2	2
(b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats;	-	1	1

Superseded

Construction of Wheatstone Bridge.			
3.8 Power Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.	-	2	2
3.9 Capacitance/Capacitor Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor colour coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.	-	2	2
3.10 Magnetism (a) Theory of magnetism; Properties of a magnet; Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor; b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets.	- -	2 2	2 2
3.11 Inductance/Inductor Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles;	-	2	2

Superseded

Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self-induction; Saturation point; Principle uses of inductors.			
3.12 DC Motor/Generator Theory Basic motor and generator theory; Construction and purpose of components in DC generator; Operation of, and factors affecting output and direction of current flow in DC generators; Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; Series wound, shunt wound and compound motors; Starter Generator construction.	-	2	2
3.13 AC Theory Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power; Triangular/Square waves; Single/3 phase principles.	1	2	2
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.	-	2	2

Superseded

3.15 Transformers Transformer construction principles and operation; Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers.	-	2	2
3.16 Filters Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.	-	1	1
3.17 AC Generators Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.	-	2	2
3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	-	2	2

MODULE 4 - ELECTRONIC FUNDAMENTALS

	Level		
	A	B1	B2

Superseded

4.1 Semiconductors *4.1.1 Diodes* (a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes; (b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.	- -	2 -	2 2
4.1.2 Transistors (a) Transistor symbols; Component description and orientation; Transistor characteristics and properties; (b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.	- -	1 -	2 2

Superseded

4.1.3 Integrated Circuits (a) Description and operation of logic circuits and linear circuits/operational amplifiers; (b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.	- - -	1 - -	- - 2
4.2 Printed Circuit Boards Description and use of printed circuit boards.	-	1	2
4.3 Servomechanisms (a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system components/ features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters; (b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.	- - -	1 - -	- - 2

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

	Level		
	A	B1	B2

Superseded

5.1 Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.	1	2	3
5.2 Numbering Systems Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.	-	1	2
5.3 Data Conversion Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.	-	1	2
5.4 Data Buses Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications; Aircraft Network/Ethernet.	-	2	2
5.5 Logic Circuits (a) Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams; (b) Interpretation of logic diagrams.	- -	2 -	2 2
5.6 Basic Computer Structure (a) Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems); (b) Computer related terminology; Operation, layout and interface of the major components in a micro-computer including their associated bus systems; Information contained in single and multi-address instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.	1 -	2 -	- 2
5.7 Microprocessors Functions performed and overall operation of a microprocessor;	-	-	2

Superseded

Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.			
5.8 Integrated Circuits Operation and use of encoders and decoders; Function of encoder types; Uses of medium, large and very large scale integration.	-	-	2
5.9 Multiplexing Operation, application and identification in logic diagrams of multiplexers and demultiplexers.	-	-	2
5.10 Fibre Optics Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems.	-	1	2
5.11 Electronic Displays Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	-	2	2
5.12 Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.	1	2	2
5.13 Software Management Control Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.	-	2	2
5.14 Electromagnetic Environment Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field	-	2	2

Superseded

Lightning/lightning protection.			
5.15 Typical Electronic/Digital Aircraft Systems General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) such as: ACARS-ARINC Communication and Addressing and Reporting System EICAS-Engine Indication and Crew Alerting System FBW-Fly-by-Wire FMS-Flight Management System IRS-Inertial Reference System ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems.	-	2	2

MODULE 6 - MATERIALS AND HARDWARE

	Level		
	A	B1	B2
6.1 Aircraft Materials — Ferrous (a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels; (b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	1 -	2 1	1 1
6.2 Aircraft Materials — Non-Ferrous (a) Characteristics, properties and identification of common non-ferrous materials used in aircraft;	1	2	1

Superseded

Heat treatment and application of non-ferrous materials; (b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.3 Aircraft Materials — Composite and Non-Metallic *6.3.1 Composite and non-metallic other than wood and fabric* (a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents; (b) The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.	1 1	2 2	2 -
6.3.2 Wooden structures Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.	-	-	-
6.3.3 Fabric covering Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.	-	-	-
6.4 Corrosion (a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress; (b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	1 2	1 3	1 2

Superseded

6.5 Fasteners *6.5.1 Screw threads* Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads.	2	2	2
6.5.2 Bolts, studs and screws Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self-locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal; Self tapping screws, dowels.	2	2	2
6.5.3 Locking devices Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2
6.5.4 Aircraft rivets Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1
6.6 Pipes and Unions (a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; (b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2 2	2 2	2 1
6.7 Springs Types of springs, materials, characteristics and applications.	1	2	1
6.8 Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2

Superseded

6.9 Transmissions Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	1	2	2
6.10 Control Cables Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1
6.11 Electrical Cables and Connectors Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2

MODULE 7 - MAINTENANCE PRACTICES

	Level		
	A	B1	B2
7.1 Safety Precautions-Aircraft and Workshop Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals; Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	3	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship;	3	3	3

Superseded

Calibration of tools and equipment, calibration standards.			
7.3 Tools Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods; Operation, function and use of electrical general test equipment.	3	3	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	-	2	3
7.5 Engineering Drawings, Diagrams and Standards Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Specification S1000D; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	1	2	2
7.6 Fits and Clearances Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	1	2	1
7.7 Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance;	1	3	3

Superseded

Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; EWIS installations, inspection, repair, maintenance and cleanliness standards.			
7.8 Riveting Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	1	2	-
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	1	2	-
7.10 Springs Inspection and testing of springs.	1	2	-
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	1	2	-
7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	1	2	-
7.13 Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	1	2	-
7.14 Material handling *7.14.1 Sheet Metal* Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	-	2	-

Superseded

7.14.2 Composite and non-metallic Bonding practices; Environmental conditions; Inspection methods.	-	2	-
7.15 Welding, Brazing, Soldering and Bonding (a) Soldering methods; inspection of soldered joints; (b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	- -	2 2	2 -
7.16 Aircraft Weight and Balance (a) Centre of Gravity/Balance limits calculation: use of relevant documents; (b) Preparation of aircraft for weighing; Aircraft weighing.	- -	2 2	2 -
7.17 Aircraft Handling and Storage Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies; Effects of environmental conditions on aircraft handling and operation.	2	2	2
7.18 Disassembly, Inspection, Repair and Assembly Techniques (a) Types of defects and visual inspection techniques; Corrosion removal, assessment and reprotection; (b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes; (c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	2 - -	3 2 2	3 - 1

Superseded

(d) Disassembly and re-assembly techniques;	2	2	2
(e) Trouble shooting techniques.	-	2	2
7.19 Abnormal Events (a) Inspections following lightning strikes and HIRF penetration; (b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2 2	2 2	2 -
7.20 Maintenance Procedures Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures; Control of life limited components.	1	2	2
7.21 Armament Safety Safety principles and elements with armed aircraft, ammunitions; Safety aspects of canopy, ejection seat and other pyrotechnic devices.	2	2	2

MODULE 8 - BASIC AERODYNAMICS

	Level		
	A	B1	B2
8.1 Physics of the Atmosphere International Standard Atmosphere (ISA), application to aerodynamics.	1	2	2

Superseded

8.2 Aerodynamics Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio; Thrust, Weight, Aerodynamic Resultant; Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall; Aerofoil contamination including ice, snow, frost.	1	2	2
8.3 Theory of Flight Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope and structural limitations; Lift augmentation.	1	2	2
8.4 Flight Stability and Dynamics Longitudinal, lateral and directional stability (active and passive).	1	2	2

MODULE 9 - HUMAN FACTORS

	Level		
	A	B1	B2
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; "Murphy's" law.	1	2	2

Superseded

9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	1	2	2
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; "Culture" issues; Team working; Management, supervision and leadership; Military environment and other military factors.	1	1	1
9.4 Factors Affecting Performance Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.	2	2	2
9.5 Physical Environment Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Military Working environments.	1	1	1
9.6 Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.	1	1	1

Superseded

9.7 Communication Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	2	2	2
9.8 Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.	1	2	2
9.9 Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	2	2	2

MODULE 10 - AVIATION LEGISLATION

	Level		
	A	B1	B2
10.1 Regulatory Framework Military/State Organisation: Role of the Military Aviation Authority; Introduction to the national military airworthiness regulations.	1	1	1
10.2 Certifying Staff — Maintenance Understanding of MAML and Certifying staff regulation.	2	2	2
10.3 Approved Maintenance Organisations Understanding of DASR 145.	2	2	2
10.4 Air operations Operating Authority's responsibilities, in particular regarding continuing airworthiness and maintenance;	1	2	2

Superseded

Aircraft Maintenance Programme; MEL/CDL or National equivalent; Documents to be carried on board; Aircraft placarding (markings).			
10.5 Certification of aircraft, parts and appliances (a) General; General understanding of DASR 21 and airworthiness codes/criteria; (b) Documents; Military Type-Certificates; Military Restricted Type-Certificates; Military Supplemental Type-Certificates; Military Certificates Of Airworthiness; Military Restricted Certificates Of Airworthiness; Military Permit To Fly; National Certificate of Registration; Weight & Balance; National Noise Certificate if required.	- - -	1 1 1	1 1 1
10.6 Continuing airworthiness Understanding of DASR 21 provisions related to continuing airworthiness; Understanding of DASR M.	1 2	1 2	1 2
10.7 Applicable Requirements a) Maintenance Programmes, Maintenance checks and inspections; Airworthiness Directives; Service Bulletins, manufacturers' service information; Modifications and repairs; Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc ; Master Minimum Equipment Lists, Minimum Equipment List and Dispatch Deviation Lists or National equivalent; (b) Continuing airworthiness; Minimum equipment requirements — Test flights; Maintenance and dispatch requirements.	 1 - 	 2 1 	 2 1

Superseded

MODULE 11A - TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A1	B1.1
11.1 Theory of Flight *11.1.1. Aeroplane Aerodynamics and Flight Controls* Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;	1	2
11.1.2. High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number; Effects of external stores.	1	2
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary;	2	2

Superseded

Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	1	2
11.3 Airframe Structures — Aeroplanes *11.3.1 Fuselage (System 52/53/56)* Construction and pressurisation sealing; Wing, stabiliser, pylon and undercarriage attachments; Seat installation and cargo loading system; Doors and emergency exits: construction, mechanisms, operation and safety devices; Windows and windscreen construction and mechanisms; Canopy construction and mechanism;	1	2
11.3.2 Wings (System 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments;	1	2
11.3.3 Stabilisers (System 55) Construction; Control surface attachment ;	1	2

Superseded

11.3.4 Flight Control Surfaces (System 55/57) Construction and attachment; Balancing — mass and aerodynamic;	1	2
11.3.5 Nacelles/Pylons (System 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (System 21) *11.4.1 Air supply* Sources of air supply including engine bleed, APU and ground cart;	1	2
11.4.2 Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system;	1	3
11.4.3 Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers; Canopy seal, anti-g system;	1 1	3 2
11.4.4 Safety and warning devices Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems *11.5.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems;	1	2

Superseded

Glass cockpit; Other aircraft system indication.		
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 1

Superseded

11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems; Balancing and rigging; Stall protection/warning system.	1	3
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defueling including Air to Air Refueling (AAR); Longitudinal balance fuel systems including during AAR.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3

Superseded

11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellent; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing; Drag-chute and Arresting hook/landing assistance equipment.	2 1	3 1
11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices; Emergency.	2	3
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution;	1	3

Superseded

Indications and warnings; Interfaces with other systems.		
11.17 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	-	-
11.18 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2
11.19 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc; Core System; Network Components.	1	2
11.20 Cabin Systems (System 44) The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, and video transmissions. The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels. The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System; The Cabin Network Service may host functions such as access to pre-departure/ departure reports; Cabin Core System;	1	2

Superseded

External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.		
11.21 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 11B - PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A2	B1.2
11.1 Theory of Flight *11.1.1. Aeroplane Aerodynamics and Flight Controls* Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons;	1	2

Superseded

Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;		
11.1.2. High Speed Flight – N/A	-	-
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2 1	2 2
11.3 Airframe Structures — Aeroplanes *11.3.1 Fuselage (System 52/53/56)* Construction and pressurisation sealing; Wing, tail-plane, pylon and undercarriage attachments;	1	2

Superseded

Seat installation; Doors and emergency exits: construction and operation; Windows and windscreen attachment; Canopy construction and mechanism.		
11.3.2 Wings (System 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (System 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (System 55/57) Construction and attachment; Balancing — mass and aerodynamic;	1	2
11.3.5 Nacelles/Pylons (System 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (System 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices; Heating systems.	1	3
11.5 Instruments/Avionic Systems *11.5.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit;	1	2

Superseded

Other aircraft system indication.		
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 3
11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks;	1	3

Superseded

Balancing and rigging; Stall warning system.		
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defueling.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical; Filters; Pressure Control; Power distribution; Indication and warning systems.	1	3
11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3

Superseded

11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo; Emergency.	2	3
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	-	-

MODULE 12 - HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A3	B1.3
	A4	B1.4

Superseded

12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	1	2
12.2 Flight Control Systems Cyclic control; Collective control; Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and fly-by-wire; Artificial feel; Balancing and rigging.	2	3
12.3 Blade Tracking and Vibration Analysis Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	1	3
12.4 Transmission Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake;	1	3

Superseded

Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers.		
12.5 Airframe Structures (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection; Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2 1	2 2
12.6 Air Conditioning (System 21) *12.6.1 Air supply* Sources of air supply including engine bleed and ground cart.	1	2
12.6.2 Air conditioning Air conditioning systems; Distribution systems; Flow and temperature control systems;	1	3

Superseded

Protection and warning devices.		
12.7 Instruments/Avionic Systems *12.7.1 Instrument Systems (System 31)* Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Vibration indicating systems; HUMS; Glass cockpit; Other aircraft system indication.	1	2
12.7.2 Avionic Systems Fundamentals of system layouts and operation of: Auto Flight (System 22); Communications (System 23); Navigation Systems (System 34).	1	1
12.8 Electrical Power (System 24) Batteries Installation and Operation; DC power generation, AC power generation; Emergency power generation; Voltage regulation, Circuit protection; Power distribution; Inverters, transformers, rectifiers; External/Ground power.	1	3
12.9 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems; (b) Emergency flotation systems; Cargo handling and retention equipment.	2 1	2 1
12.10 Fire Protection (System 26) Fire and smoke detection and warning systems;	1	3

Superseded

Fire extinguishing systems; System tests.		
12.11 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	1	3
12.12 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3
12.13 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing and De-icing systems: electrical, hot air and chemical; Rain repellent and removal; Probe and drain heating; Wiper system.	1	3
12.14 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning;	2	3

Superseded

Wheels, Tyres, brakes; Steering; Air-ground sensing; Skids, floats.		
12.15 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	2	3
12.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
12.17 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc; Core System; Network Components.	1	2
12.18 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2

Superseded

12.19 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 13 - AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level
	B2
13.1 Theory of Flight (a) Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; Operation and effect of trim tabs, servo tabs, control surface bias; (b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number;	1 1

Superseded

(c) Rotary Wing Aerodynamics Terminology; Operation and effect of cyclic, collective and anti-torque controls.	1
13.2 Structures — General Concepts (a) Fundamentals of structural systems; (b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	1 2
13.3 Autoflight (System 22) Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface; Autothrottle systems; Automatic Landing Systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.	3
13.4 Communication/Navigation (System 23/34) (a) Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter; (b) Working principles of following systems: — Very High Frequency (VHF) communication, — High Frequency (HF) communication, — Audio, — Emergency Locator Transmitters (ELT), — Cockpit Voice Recorder (CVR), — Very High Frequency omnidirectional range (VOR), — Tactical air navigation system (TACAN), — Automatic Direction Finding (ADF),	3 3

Superseded

— Instrument Landing System (ILS), — Flight Director systems, Distance Measuring Equipment (DME), — Doppler navigation, — Area navigation, RNAV systems, — Flight Management Systems(FMS), — Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS), GNSS Landing System (GLS), Transponder Landing System (TLS), — Inertial Navigation System (INS), — Air Traffic Control transponder, secondary surveillance radar, — Traffic Alert and Collision Avoidance System (TCAS), — Weather avoidance radar, — Radio altimeter, — Data-link communication and reporting; — Microwave Landing System (MLS), — Very Low Frequency and hyperbolic navigation (VLF/Omega).	-
13.5 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	3
13.6 Equipment and Furnishings (System 25) (a) Electronic emergency equipment requirements; (b) Cabin entertainment equipment.	3 -

Superseded

13.7 Flight Controls (System 27) (a) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems; (b) System operation: electrical, fly-by-wire.	2 3
13.8 Instruments (System 31) Classification; Atmosphere; Terminology; Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros;	3

Superseded

Ground Proximity Warning Systems/Terrain Awareness Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems; Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication; Glass cockpit.	
13.9 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	3
13.10 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	3
13.11 Air Conditioning and Cabin Pressurisation (System 21) *13.11.1. Air supply* Sources of air supply including engine bleed, APU and ground cart;	2
13.11.2. Air Conditioning Distribution systems; Air conditioning systems; Air cycle and vapour cycle machines; Flow, temperature and humidity control system;	1 2 3
13.11.3. Pressurisation Pressurisation systems;	3

Superseded

Control and indication including control and safety valves; Cabin pressure controllers; Canopy seal and anti-g system;	1
13.11.4. Safety and warning devices Protection and warning devices.	3
13.12 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	3 1
13.13 Fuel Systems (System 28) (a) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; (b) Cross-feed and transfer; Refuelling and defuelling including AAR; (c) Longitudinal balance fuel systems; Indications and warnings.	1 2 3
13.14 Hydraulic Power (System 29) (a) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Filters; Power distribution;	1

Superseded

(b) Pressure control; Pressure generation: electrical, mechanical, pneumatic; Emergency pressure generation; Indication and warning systems; Interface with other systems.	3
13.15 Ice and Rain Protection (System 30) (a) Rain repellent; Wiper Systems; (b) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; (c) De-icing systems: electrical, hot air, pneumatic, chemical; Probe and drain heating.	1 2 3
13.16 Landing Gear (System 32) (a) Construction, shock absorbing; Tyres; (b) Extension and retraction systems: normal and emergency; Indications and warnings; Wheels, brakes, antiskid and autobraking; Steering; Air-ground sensing.	1 3
13.17 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	3
13.18 Pneumatic/Vacuum (System 36) (a) Distribution;	1
(b) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply;	2

Superseded

(c) Pressure control; Indications and warnings; Interfaces with other systems.	3
13.19 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing.	-
13.20 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.; Core System; Network Components.	3
13.21 Cabin Systems (System 44) The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data transmissions. The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels. The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System; The Cabin Network Service may host functions such as access to pre-departure/departure reports; Cabin Core System; External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.	3
13.22 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.	3

Superseded

Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	

MODULE 14 - PROPULSION

	Level
	B2
14.1 Turbine Engines (a) Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines; (b) Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC).	1 2
14.2 Engine Indicating Systems Exhaust gas temperature/Interstage turbine temperature systems; Engine speed; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure, temperature and flow; Manifold pressure; Engine torque; Propeller speed.	2
14.3 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	2

Superseded

MODULE 15 - GAS TURBINE ENGINE

	Level	
	A1 A3	B1.1 B1.3
15.1 Fundamentals Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle; The relationship between force, work, power, energy, velocity, acceleration; Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop.	1	2
15.2 Engine Performance Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption; Engine efficiencies; By-pass ratio and engine pressure ratio; Pressure, temperature and velocity of the gas flow; Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.	-	2
15.3 Inlet Compressor inlet ducts; Effects of various inlet configurations; Ice protection.	2	2
15.4 Compressors Axial and centrifugal types; Constructional features and operating principles and applications; Fan balancing; Operation: Causes and effects of compressor stall and surge; Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades;	1	2

Superseded

Compressor ratio.		
15.5 Combustion Section Constructional features and principles of operation.	1	2
15.6 Turbine Section Operation and characteristics of different turbine blade types; Blade to disk attachment; Nozzle guide vanes; Causes and effects of turbine blade stress and creep.	2	2
15.7 Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	1	2
15.8 Bearings and Seals Constructional features and principles of operation.	1	2
15.9 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2
15.10 Lubrication Systems System operation/lay-out and components.	1	2
15.11 Fuel Systems Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
15.12 Air Systems Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.	1	2
15.13 Starting and Ignition Systems Operation of engine start systems and components;	1	2

Superseded

Ignition systems and components; Maintenance safety requirements.		
15.14 Engine Indication Systems Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow; Engine speed; Vibration measurement and indication; Torque; Power.	1	2
15.15 Power Augmentation Systems Operation and applications; Water injection, water methanol; Afterburner systems.	1	1
15.16 Turbo-prop Engines Gas coupled/free turbine and gear coupled turbines; Reduction gears; Integrated engine and propeller controls; Overspeed safety devices.	1	2
15.17 Turbo-shaft Engines Arrangements, drive systems, reduction gearing, couplings, control systems.	1	2
15.18 Auxiliary Power Units (APUs) Purpose, operation, protective systems.	1	2
15.19 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
15.20 Fire Protection Systems Operation of detection and extinguishing systems.	1	2

Superseded

15.21 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Trend (including oil analysis, vibration and boroscope) monitoring; Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer; Compressor washing/cleaning; Foreign Object Damage.	1	3
15.22 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 16 - PISTON ENGINE

	Level	
	A2 A4	B1.2 B1.4
16.1 Fundamentals Mechanical, thermal and volumetric efficiencies; Operating principles — 2 stroke, 4 stroke, Otto and Diesel; Piston displacement and compression ratio; Engine configuration and firing order.	1	2
16.2 Engine Performance Power calculation and measurement; Factors affecting engine power; Mixtures/leaning, pre-ignition.	1	2
16.3 Engine Construction Crank case, crank shaft, cam shafts, sumps; Accessory gearbox; Cylinder and piston assemblies;	1	2

Superseded

Connecting rods, inlet and exhaust manifolds; Valve mechanisms; Propeller reduction gearboxes.		
16.4 Engine Fuel Systems *16.4.1 Carburettors* Types, construction and principles of operation; Icing and heating.	1	2
16.4.2 Fuel injection systems Types, construction and principles of operation.	1	2
16.4.3 Electronic engine control Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
16.5 Starting and Ignition Systems Starting systems, pre-heat systems; Magneto types, construction and principles of operation; Ignition harnesses, spark plugs; Low and high tension systems.	1	2
16.6 Induction, Exhaust and Cooling Systems Construction and operation of: induction systems including alternate air systems; Exhaust systems, engine cooling systems — air and liquid.	1	2
16.7 Supercharging/Turbocharging Principles and purpose of supercharging and its effects on engine parameters; Construction and operation of supercharging/turbocharging systems; System terminology; Control systems; System protection.	1	2
16.8 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2

Superseded

16.9 Lubrication Systems System operation/lay-out and components.	1	2
16.10 Engine Indication Systems Engine speed; Cylinder head temperature; Coolant temperature; Oil pressure and temperature; Exhaust Gas Temperature; Fuel pressure and flow; Manifold pressure.	1	2
16.11 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
16.12 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.	1	3
16.13 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 17 - PROPELLER

	Level	
	A1 A2	B1.1 B1.2
17.1 Fundamentals Blade element theory;	1	2

Superseded

High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip; Aerodynamic, centrifugal, and thrust forces; Torque; Relative airflow on blade angle of attack; Vibration and resonance.		
17.2 Propeller Construction Construction methods and materials used in propellers; Blade station, blade face, blade shank, blade back and hub assembly; Fixed pitch, controllable pitch, constant speeding propeller; Propeller/spinner installation.	1	2
17.3 Propeller Pitch Control Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch; Overspeed protection.	1	2
17.4 Propeller Synchronising Synchronising and synchrophasing equipment.	-	2
17.5 Propeller Ice Protection Fluid and electrical de-icing equipment.	1	2
17.6 Propeller Maintenance Static and dynamic balancing; Blade tracking; Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller treatment/repair schemes; Propeller engine running.	1	3
17.7 Propeller Storage and Preservation Propeller preservation and depreservation.	1	2

MODULE 50 - PRINCIPLES OF ARMAMENT

Superseded

	Level		
	A	B1	B2
50.1 Essential principles of Armament (a) Propellants and explosives; Pyrotechnics (including Flares); Stores loading / unloading (to include chaff and flares) including hang-up and misfire; Ammunitions transportation; Air-to-air missile; Air-to-ground missile; Air-to-sea missile; Aerial torpedo; Bombs (freefall and guided); (b) Missile guidance methods: radar, infrared, electro-optical, passive anti-radiation; Missile warheads and detonation mechanisms; Guided weapon (missiles) aerodynamics and flight controls; (c) Storage, de-stocking and ammunitions assembly; Documents for storage, release and transportation of explosive items and firearms and explosive regulations.	1 1 1	1 1 1	1 1 1

MODULES 50 – 55: MILITARY-SPECIFIC SYSTEMS

MODULE 51 - WEAPONS SYSTEMS

	Level		
	A	B1	B2
51.1 Weapons stores system (System 94) (a) Weapon and stores release, fire and jettison stores;	2	3	3

Superseded

Weapon suspension system; Interconnecting equipment to transport and release/fire weapons; Gunnery; (b) Weapon control, designating and acquiring a target.	1	2	3

MODULE 52 - OPERATIONAL ATTACK SYSTEMS

	Level		
	A	B1	B2
52.1 Attack System Management (System 39) Architecture, management; Attack system functions; General rules of human-machine communication; Digital Networks, hardware and software, other information networks, network for video signals, network for blanking signals, MIL-STD-1553B (STANAG 3838 and STANAG 3910), MIL-STD-1773; Stores management hardware and software; Attack system resources, contributing resources; Role during mission phases.	-	2	3
52.2 Operational attack functions (System 40) Air-to-air functions: fire control functions, bullet gun firing, short range, medium range or beyond visual range missiles firing, air-to-air management after weapons launch, management of on-board guidance; Air-to-surface functions, Air-to-sea functions; Information exchange and cooperation; Navigational functions, localisation, flight management, approach and landing management; Nap of the earth flight: terrain following and obstacle avoidance management; Self protection: defensive manoeuvers and tactics elaboration against threats;	-	2	3

Superseded

Identification: aerial and surface objects identification based on autonomous and external identification means.			
52.3 Cross-technical attack functions (System 42) Tactical situation awareness; Aircraft Mission preparation and restitution, hardware and software; Cautions and warnings management; Mission system control and management; Trajectory management; Attack system compatibilities management, electromagnetic compatibility between all the transmitters and receivers.	-	2	3

MODULE 53 - SURVEILLANCE AND ELECTRONIC WARFARE

	Level		
	A	B1	B2
53.1 Surveillance (System 93) Data processing; Data display; Recording; Identification; Infra-red and laser sensors; Surveillance radar; Magnetic sensors; Sonar sensors (active and passive).	1	2	3
53.2 Image recording (System 97) (a) Optical systems;	1	2	2
(b) Specificities of aerial photography; Cameras.	1	1	1

Superseded

53.3 Electronic warfare (System 99) Active electromagnetic; Passive electromagnetic; ELINT; Infrared and Laser systems; Electromagnetic countermeasures.	-	2	3

MODULE 54 - CREW SAFETY

	Level		
	A	B1	B2
54.1 Crew escape and safety (System 95) Ejection seats; Escape hatches/canopy, Miniature Detonating Cord (MDC); Global survival kits; Impact protection.	2	3	2

MODULE 55 - MILITARY COMMUNICATION SYSTEMS

	Level		
	A	B1	B2
55.1 Military communication systems Tactical Data Links: Link 11, Link 16, Link 22; Tactical communications systems.	-	-	3

Superseded

1. General

1.1 All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.

1.2 Each multi-choice question shall have at least three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of 75 seconds per question.

1.3 Each essay question requires the preparation of a written answer and the candidate shall be allowed 20 minutes to answer each such question.

1.4 Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in Appendix I Modules 7, 9 and 10.

1.5 Each essay question will have a model answer drafted for it, which will also include any known alternative answers that may be relevant for other sub-modules.

1.6 The essay question model answer will also be broken down into a list of the important points known as Key Points.

1.7 The pass mark for each module and sub-module multi-choice part of the examination is 75 %.

1.8 The pass mark for each essay question is 75 % in that the candidates answer shall contain 75 % of the required key points addressed by the question and no significant error related to any required key point.

1.9 If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi- choice or essay part, as appropriate.

1.10 Penalty marking systems shall not be used.

1.11 A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of a maintenance training organisation approved in accordance with DASR 147 which conducts a course of retraining tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days, unless approved otherwise by the MAA.

1.12 The time periods required by DASR 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence, where the licence has already been issued.

1.13 The maximum number of consecutive attempts for each module is three. Further sets of three attempts are allowed with a 1 year waiting period between sets, unless approved by the MAA.

The applicant shall confirm in writing to the approved MTO or the MAA to which they apply for an examination, the number and dates of attempts during the last year and the MTO or

Superseded

the MAA where these attempts took place. The MTO or the MAA is responsible for checking the number of attempts within the applicable timeframes.

2. Number of questions per module

MODULE 1 — MATHEMATICS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B2: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 2 — PHYSICS

Category A: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 3 — ELECTRICAL FUNDAMENTALS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 4 — ELECTRONIC FUNDAMENTALS

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

MODULE 5 — DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

Category B2: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 6 — MATERIALS AND HARDWARE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B2: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

MODULE 7 — MAINTENANCE PRACTICES

Category A: 72 multi-choice and 2 essay questions. Time allowed 90 minutes plus 40 minutes.

Category B1: 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes.

Category B2: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

Superseded

MODULE 8 — BASIC AERODYNAMICS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

MODULE 9 — HUMAN FACTORS

Category A: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B1: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B2: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

MODULE 10 — AVIATION LEGISLATION

Category A: 32 multi-choice and 1 essay question. Time allowed 40 minutes plus 20 minutes.

Category B1: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

Category B2: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

MODULE 11A — TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 108 multi-choice and 0 essay questions. Time allowed 135 minutes.

Category B1: 140 multi-choice and 0 essay questions. Time allowed 175 minutes.

MODULE 11B — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B1: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

MODULE 12 — HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS:

Category A: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

Category B1: 128 multi-choice and 0 essay questions. Time allowed 160 minutes.

MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B2: 180 multi-choice and 0 essay questions. Time allowed 225 minutes.

Questions and time allowed may be split into two examinations as appropriate.

MODULE 14 — PROPULSION

Category B2: 24 multi-choice and 0 essay questions. Time allowed 30 minutes.

MODULE 15 — GAS TURBINE ENGINE

Category A: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

Category B1: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

MODULE 16 — PISTON ENGINE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Superseded

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 17 — PROPELLER

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 50 — PRINCIPLES OF ARMAMENT

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B2: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

MODULE 51 — WEAPONS SYSTEMS

Category A: 24 multi-choice and 0 essay question. Time allowed 30 minutes.

Category B1: 28 multi-choice and 0 essay question. Time allowed 35 minutes.

Category B2: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

MODULE 52 — OPERATIONAL ATTACK SYSTEMS

Category B1: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

Category B2: 80 multi-choice and 0 essay question. Time allowed 100 minutes.

MODULE 53 — SURVEILLANCE AND ELECTRONIC WARFARE

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

Category B2: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

MODULE 54 — CREW SAFETY

Category A: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

Category B1: 20 multi-choice and 0 essay question. Time allowed 25 minutes.

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

MODULE 55 — MILITARY COMMUNICATION SYSTEMS

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

☐ AMC

Superseded

Appendix III to DASR 66 - Military Aircraft Type Training and Examination Standard, and On-the-Job Training (OJT)

☐ AMC ☐ AMC1 ☐ GM

1. **General** ☐ AMC

Military Aircraft Type Training shall consist of theoretical training and examination, and, except for the Category C ratings, practical training and assessment. Where Military Aircraft Type Training includes military-specific systems, the prerequisite is that the student shall have gained the relevant 50-series modules (or sub-modules) of DASR 66 Appendix I.

a. Theoretical training and examination shall comply with the following requirements:

i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.

ii. Shall comply with the standard described in paragraph 3.1 and 4 of this Appendix III, except as permitted by the differences training described below.

iii. In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by the MAA.

iv. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

b. Practical training and assessment shall comply with the following requirements:

i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.

ii. Shall comply with the standard described in paragraph 3.2 and 4 of this Appendix III, except as permitted by the differences training described below.

iii. Shall include a representative cross section of maintenance activities relevant to the aircraft type.

iv. Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.

v. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

c. Differences training ☐ **AMC**

i. Differences training is the training required in order to cover the differences between two different Military Aircraft Type Ratings of the same manufacturer as determined by the MAA.

ii. Differences training has to be defined on a case-by-case basis taking into account the requirements contained in this Appendix III in respect of both theoretical and practical elements of Military Aircraft Type Rating training.

iii. A Military Aircraft Type Rating shall only be endorsed on a MAML after differences training when the applicant also complies with one of the following conditions:

– having already endorsed on the MAML the Military Aircraft Type Rating from which the differences are being identified, or

Superseded

– having completed the Military Aircraft Type Training requirements for the aircraft from which the differences are being identified.

2. **Military Aircraft Type Training levels**

The three levels listed below define the objectives, the depth of training and the level of knowledge that the training is intended to achieve.

Level 1: A brief overview of the airframe, systems and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual/Instructions for Continuing Airworthiness.

Course objectives: Upon completion of Level 1 training, the student will be able to:

a. provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant;

b. identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;

c. define the general layout of the aircraft's major systems;

d. define the general layout and characteristics of the powerplant;

e. identify special tooling and test equipment used with the aircraft.

Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.

Course objectives: In addition to the information contained in the Level 1 training, at the completion of Level 2 training, the student will be able to:

a. understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;

b. recall the safety precautions to be observed when working on or near the aircraft, powerplant, systems and armaments;

c. describe systems and aircraft handling particularly access, power availability and sources;

d. identify the locations of the principal components;

e. explain the normal functioning of each major system, including terminology and nomenclature;

f. perform the procedures for servicing associated on aircraft systems;

g. demonstrate proficiency in interpretation of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/ CDL or National equivalent;

h. demonstrate the use, interpretation and application of appropriate documentation including instructions for continuing airworthiness, maintenance manual, illustrated parts catalogue, etc.

Superseded

Level 3: Detailed description, operation, component location, removal/installation and BITE and troubleshooting procedures to maintenance manual level.

Course objectives: In addition to the information contained in Level 1 and Level 2 training, at the completion of Level 3 training, the student will be able to:

a. demonstrate a theoretical knowledge of aircraft systems and structures and interrelationships with other systems, provide a detailed description of the subject using theoretical fundamentals and specific examples and to interpret results from various sources and measurements and apply corrective action where appropriate;

b. perform system, powerplant, component and functional checks as specified in the aircraft maintenance manual;

c. demonstrate the use, interpretation and application of appropriate documentation including structural repair manual, troubleshooting manual, etc.;

d. correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level;

e. describe procedures for replacement of components specific to aircraft type.

3. **Military Aircraft Type Training standard**

Although Military Aircraft Type Training includes both theoretical and practical elements, courses can be approved for the theoretical element, the practical element or for a combination of both.

3.1 Theoretical element

a. Objective:
On completion of a theoretical training course the student shall be able to demonstrate, to the levels identified in the DASR 66 Appendix III syllabus, the detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

b. Level of training:
Training levels are those levels defined in point 2 above.

After the first type course for Category C certifying staff, all subsequent courses need only be to level 1.

During a level 3 theoretical training, Level 1 and 2 training material may be used to teach the full scope of the chapter if required. However, during the training the majority of the course material and training time shall be at Level 3.

c. Duration:
NOT APPLICABLE.

d. Justification of course duration: ☐ **AMC**

Training courses carried out in an MTO shall justify their hour duration and the coverage of the full syllabus by a training needs analysis based on:

Superseded

- the design of the aircraft type, its maintenance needs and the types of operation,

- detailed analysis of applicable chapters — see contents table in point 3.1(e) below,

- detailed competency analysis showing that the objectives as stated in point 3.1(a) above are fully met.

Course duration shall be approved by the MAA.

Similarly, tuition hours of differences courses or other training course combinations (such as combined B1/B2 courses), and in cases of theoretical Military Aircraft Type Training courses, these shall be justified by the training needs analysis as described above.

In addition, the course documentation must describe and justify the following:

- The minimum attendance required by the student, in order to meet the objectives of the course.

- The maximum number of hours of training per day, taking into account pedagogical and human factors principles.

If the minimum attendance required is not met, the certificate of recognition shall not be issued. Additional training may be provided by the MTO in order to meet the minimum attendance time.

e. Content:

As a minimum, the elements in the Syllabus (see table below) that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes, etc. shall also be included

Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters turbine		Helicopters piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Introduction module:									
05 Time limits/maintenance checks	1	1	1	1	1	1	1	1	1
06 Dimensions/Areas (MTOM, etc.)	1	1	1	1	1	1	1	1	1

Superseded

07 Lifting and Shoring	1	1	1	1	1	1	1	1	1
08 Levelling and weighing	1	1	1	1	1	1	1	1	1
09 Towing and taxiing	1	1	1	1	1	1	1	1	1
10 Parking/mooring, Storing and Return to Service	1	1	1	1	1	1	1	1	1
11 Placards and Markings	1	1	1	1	1	1	1	1	1
12 Servicing	1	1	1	1	1	1	1	1	1
14 Product loading and off loading	1	1	1	1	1	1	1	1	1
20 Standard practices including armament safety — only type particular	1	1	1	1	1	1	1	1	1
Helicopters									
18 Vibration and Noise Analysis (Blade tracking)	-	-	-	-	3	1	3	1	-
25 Emergency Flotation Equipment	-	-	-	-	3	1	3	1	1
53 Airframe Structure (Helicopter)	-	-	-	-	3	1	3	1	-
60 Standard Practices Rotor	-	-	-	-	3	1	3	1	-

Superseded

62 Rotors	-	-	-	-	3	1	3	1	1
62A Rotors — Monitoring and indicating	-	-	-	-	3	1	3	1	3
63 Rotor Drives	-	-	-	-	3	1	3	1	1
63A Rotor Drives — Monitoring and indicating	-	-	-	-	3	1	3	1	3
64 Tail Rotor	-	-	-	-	3	1	3	1	1
64A Tail rotor — Monitoring and indicating	-	-	-	-	3	1	3	1	3
65 Tail Rotor Drive	-	-	-	-	3	1	3	1	1
65A Tail Rotor Drive — Monitoring and indicating	-	-	-	-	3	1	3	1	3
66 Folding Blades/Pylon	-	-	-	-	3	1	3	1	-
67 Rotors Flight Control	-	-	-	-	3	1	3	1	-
Airframe structures									
27A Flight Control Surfaces (All)	3	1	3	1	-	-	-	-	1
51 Standard practices and structures (damage classification, assessment and repair)	3	1	3	1	-	-	-	-	1

Superseded

52 Doors	3	1	3	1	-	-	-	-	1
53 Fuselage	3	1	3	1	-	-	-	-	1
54 Nacelles/Pylons	3	1	3	1	-	-	-	-	1
55 Stabilisers	3	1	3	1	-	-	-	-	1
56 Windows and canopies	3	1	3	1	-	-	-	-	1
57 Wings	3	1	3	1	-	-	-	-	1
06 Zonal and Station Identification Systems.	1	1	1	1	1	1	1	1	1
Airframe systems:									
21 Air Conditioning	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	3	1	3	1	2
21B Pressurisation	3	1	3	1	3	1	3	1	3
21C Safety and Warning Devices	3	1	3	1	3	1	3	1	3
22 Autoflight	2	1	2	1	2	1	2	1	3

Superseded

23 Communications	2	1	2	1	2	1	2	1	3
24 Electrical Power	3	1	3	1	3	1	3	1	3
25 Equipment and Furnishings	3	1	3	1	3	1	3	1	1
25A Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	3
26 Fire Protection	3	1	3	1	3	1	3	1	3
27 Flight Controls	3	1	3	1	3	1	3	1	2
27A Sys. Operation: Electrical/Fly-by-Wire	3	1	-	-	-	-	-	-	3
28 Fuel Systems	3	1	3	1	3	1	3	1	2
28A Fuel Systems — Monitoring and indicating	3	1	3	1	3	1	3	1	3
29 Hydraulic Power	3	1	3	1	3	1	3	1	2
29A Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3	1	3
30 Ice and Rain Protection	3	1	3	1	3	1	3	1	3
31 Indicating/Recording Systems	3	1	3	1	3	1	3	1	3

Superseded

31A Instrument Systems	3	1	3	1	3	1	3	1	3
32 Landing Gear	3	1	3	1	3	1	3	1	2
32A Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3
33 Lights	3	1	3	1	3	1	3	1	3
34 Navigation	2	1	2	1	2	1	2	1	3
35 Oxygen	3	1	3	1	-	-	-	-	2
36 Pneumatic	3	1	3	1	3	1	3	1	2
36A Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3
37 Vacuum	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	-	-	-	-	2
40 Operational attack functions	2	1	2	1	2	1	-	-	3
42 Integrated modular avionics	2	1	2	1	2	1	2	1	3
42A Cross-technical attack functions	2	1	2	1	2	1	-	-	3

Superseded

44 Cabin Systems	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	-	-	3
46 Information Systems	2	1	2	1	2	1	2	1	3
48 In-Flight refueling tanker	3	1	-	-	3	1	-	-	2
48A In-Flight refueling tanker – Monitoring and Indicating	3	1	-	-	3	1	-	-	3
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	1
Turbine Engine									
70 Standard Practices – Engines	3	1	-	-	3	1	-	-	1
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	3	1	-	-	3	1	-	-	1
70B Engine Performance	3	1	-	-	3	1	-	-	1
71 Powerplant	3	1	-	-	3	1	-	-	1
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	-	-	3	1	-	-	1
73 Engine Fuel and Control	3	1	-	-	3	1	-	-	1

Superseded

73A Full Authority Digital Engine Control (FADEC)	3	1	-	-	3	1	-	-	3
74 Ignition	3	1	-	-	3	1	-	-	3
75 Air	3	1	-	-	3	1	-	-	1
76 Engine controls	3	1	-	-	3	1	-	-	1
77 Engine Indicating Systems	3	1	-	-	3	1	-	-	3
78 Exhaust	3	1	-	-	3	1	-	-	1
79 Oil	3	1	-	-	3	1	-	-	1
80 Starting	3	1	-	-	3	1	-	-	1
82 Water Injections	3	1	-	-	3	1	-	-	1
83 Accessory Gear Boxes	3	1	-	-	3	1	-	-	1
84 Propulsion Augmentation	3	1	-	-	3	1	-	-	1
Auxiliary Power Units (APUs)									
49 Auxiliary Power Units (APUs)	3	1	-	-	3	1	-	-	2

Superseded

Piston Engine									
70 Standard Practices — Engines	-	-	3	1	-	-	3	1	1
70A Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/ Turbocharging, Lubrication Systems).	-	-	3	1	-	-	3	1	1
70B Engine Performance	-	-	3	1	-	-	3	1	1
71 Powerplant	-	-	3	1	-	-	3	1	1
73 Engine Fuel and control	-	-	3	1	-	-	3	1	1
73A FADEC	-	-	3	1	-	-	3	1	3
74 Ignition	-	-	3	1	-	-	3	1	3
76 Engine Control	-	-	3	1	-	-	3	1	1
77 Engine Indication Systems	-	-	3	1	-	-	3	1	3
79 Oil	-	-	3	1	-	-	3	1	1
80 Starting	-	-	3	1	-	-	3	1	1
81 Turbines	-	-	3	1	-	-	3	1	1

Superseded

82 Water Injection	-	-	3	1	-	-	3	1	1
83 Accessory Gear boxes	-	-	3	1	-	-	3	1	1
84 Propulsion Augmentation	-	-	3	1	-	-	3	1	1
Propellers									
60A Standard Practices — Propeller	3	1	3	1	-	-	-	-	1
61 Propellers/Propulsion	3	1	3	1	-	-	-	-	1
61A Propeller Construction	3	1	3	1	-	-	-	-	-
61B Propeller Pitch Control	3	1	3	1	-	-	-	-	-
61C Propeller Synchronising	3	1	3	1	-	-	-	-	1
61D Propeller Electronic control	3	1	3	1	-	-	-	-	3
61E Propeller Ice Protection	3	1	3	1	-	-	-	-	-
61F Propeller Maintenance	3	1	3	1	-	-	-	-	1
Military-Specific Systems									

Superseded

92 Radar	2	1	2	1	2	1	-	-	3
93 Surveillance	2	1	2	1	2	1	-	-	3
94 Weapon System	2	1	2	1	2	1	-	-	3
95 Crew Escape and Safety (partially covered by 25 for Helicopters)	3	1	3	1	3	1	3	1	2
97 Image Recording	2	1	2	1	2	1	-	-	2
99 Electronic Warfare	2	1	2	1	2	1	-	-	3

f. Multimedia Based Training (MBT) methods may be used to satisfy the theoretical training element either in the classroom or in a virtual controlled environment subject to the acceptance of the MAA approving the training course.

3.2 Practical element AMC

a. Objective:

The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks. It includes the awareness of the use of all technical literature and documentation for the aircraft, the use of specialist/special tooling and test equipment for performing removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

Content:

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

Tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively

Superseded

simple tasks may be included, other more complex tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: TroubleShooting.

Chapters	B1/ B2	B1					B2				
	LOC	FOT	SGH	R/ I	MEL	TS	FOT	SGH	R/ I	MEL	TS
Introduction module:											
05 Time limits/maintenance checks	X/X	-	-	-	-	-	-	-	-	-	-
06 Dimensions/Areas (MTOM, etc.)	X/X	-	-	-	-	-	-	-	-	-	-
07 Lifting and Shoring	X/X	-	-	-	-	-	-	-	-	-	-
08 Levelling and weighing	X/X	-	X	-	-	-	-	X	-	-	-
09 Towing and taxiing	X/X	-	X	-	-	-	-	X	-	-	-
10 Parking/mooring, Storing and Return to Service	X/X	-	X	-	-	-	-	X	-	-	-
11 Placards and Markings	X/X	-	-	-	-	-	-	-	-	-	-
12 Servicing	X/X	-	X	-	-	-	-	X	-	-	-

Superseded

14 Product loading and off loading	X/X	-	X	-	-	-	-	X	-	-	-
20 Standard practices including armament safety — only type particular	X/X	-	X	-	-	-	-	X	-	-	-
Helicopters:											
18 Vibration and Noise Analysis (Blade tracking)	X/-	-	-	-	-	X	-	-	-	-	-
25 Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	-	-	-
53 Airframe Structure (Helicopter) Note: covered under Airframe structures											
60 Standard Practices Rotor — only type specific	X/X	-	X	-	-	-	-	X	-	-	-
62 Rotors	X/-	-	X	X	-	X	-	-	-	-	-
62A Rotors — Monitoring and indicating	X/X	X	X	X	X	X	-	-	X	-	X
63 Rotor Drives	X/-	X	-	-	-	X	-	-	-	-	-
63A Rotor Drives — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
64 Tail Rotor	X/-	-	X	-	-	X	-	-	-	-	-
64A Tail rotor -Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X

Superseded

65 Tail Rotor Drive	X/-	X	-	-	-	X	-	-	-	-	-
65A Tail Rotor Drive — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
66 Folding Blades/Pylon	X/-	X	X	-	-	X	-	-	-	-	-
67 Rotors Flight Control	X/-	X	X	-	X	X	-	-	-	-	-
Airframe structures:											
27A Flight Control Surfaces	X/-	-	-	-	-	X	-	-	-	-	-
51 Standard Practices and Structures (damage classification, assessment and repair)											
52 Doors	X/X	X	X	-	-	-	-	X	-	-	-
53 Fuselage	X/-	-	-	-	-	X	-	-	-	-	-
54 Nacelles/Pylons	X/-	-	-	-	-	-	-	-	-	-	-
55 Stabilisers	X/-	-	-	-	-	-	-	-	-	-	-
56 Windows and canopies	X/-	-	-	-	-	X	-	-	-	-	-
57 Wings	X/-	-	-	-	-	-	-	-	-	-	-

Superseded

Airframe systems:											
21 Air Conditioning	X/X	X	X	-	X	X	X	X	-	X	X
21A Air Supply	X/X	X	-	-	-	-	X	-	-	-	-
21B Pressurisation	X/X	X	-	-	X	X	X	-	-	X	X
21C Safety and warning Devices	X/X	-	X	-	-	-	-	X	-	-	-
22 Autoflight	X/X	-	-	-	X	-	X	X	X	X	X
23 Communications	X/X	-	X	-	X	-	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	-	-	X	X	X	-	-
25A Electronic Equipment including emergency equipment	X/X	X	X	X	-	-	X	X	X	-	-
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	-	-	-	-
27A Sys. Operation: Electrical/Fly-by-Wire	X/X	X	X	X	X	-	X	-	X	-	X

Superseded

28 Fuel Systems	X/X	X	X	X	X	X	X	X	-	X	-
28A Fuel Systems — Monitoring and indicating	X/X	X	-	-	-	-	X	-	X	-	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	-	X	-
29A Hydraulic Power — Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
30 Ice and Rain Protection	X/X	X	X	-	X	X	X	X	-	X	X
31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	-
32A Landing Gear — Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
33 Lights	X/X	X	X	-	X	-	X	X	X	X	-
34 Navigation	X/X	-	X	-	X	-	X	X	X	X	X
35 Oxygen	X/-	X	X	X	-	-	X	X	-	-	-
36 Pneumatic	X/-	X	-	X	X	X	X	-	X	X	X

Superseded

36A Pneumatic — Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/-	X	-	X	X	X	-	-	-	-	-
38 Water/Waste	X/-	X	X	-	-	-	X	X	-	-	-
40 Operational attack functions	X/X	-	-	-	-	-	X	X	X	X	X
42 Integrated modular avionics	X/X	-	-	-	-	-	X	X	X	X	X
42A Cross-technical attack functions	X/X	X	-	-	-	-	X	X	X	X	X
44 Cabin Systems	X/X	X	-	-	-	-	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X	X	X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	-	-	-	-	-	X	-	X	X	X
48 In-Flight refueling tanker	X/X	X	X	X	X	X	X	X	-	X	-
48A In-Flight refueling tanker – Monitoring and Indicating	X/X	X	X	X	X	X	X	X	X	X	X
50 Cargo and Accessory Compartments	X/X	-	X	-	-	-	-	-	-	-	-
Turbine Engines:											

Superseded

70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-
72 Engine Turbine/Turbo Prop/Ducted Fan/ Unducted fan	X/-	-	-	-	-	-	-	-	-	-	-
73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X
74 Ignition	X/X	X	-	-	-	-	X	-	-	-	-
75 Air	X/-	-	-	X	-	X	-	-	-	-	-
76 Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77 Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78 Exhaust	X/-	X	-	-	X	-	-	-	-	-	-

Superseded

79 Oil	X/-	-	X	X	-	-	-	-	-	-	-
80 Starting	X/-	X	-	-	X	X	-	-	-	-	-
82 Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83 Accessory Gearboxes	X/-	-	X	-	-	-	-	-	-	-	-
84 Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Auxiliary Power Units (APUs):											
49 Auxiliary Power Units (APUs)	X/-	X	X	-	-	X	-	-	-	-	-
Piston Engines:											
70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-

Superseded

73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X
74 Ignition	X/X	X	-	-	-	-	X	-	-	-	-
76 Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77 Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78 Exhaust	X/-	X	-	-	X	X	-	-	-	-	-
79 Oil	X/-	-	X	X	-	-	-	-	-	-	-
80 Starting	X/-	X	-	-	X	X	-	-	-	-	-
81 Turbines	X/-	X	X	X	-	X	-	-	-	-	-
82 Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83 Accessory Gearboxes	X/-	-	X	X	-	-	-	-	-	-	-
84 Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Propellers:											

Superseded

60A Standard Practices — Propeller	-	-	-	X	-	-	-	-	-	-	-
61 Propellers/Propulsion	X/X	X	X	-	X	X	-	-	-	-	-
61A Propeller Construction	X/X	-	X	-	-	-	-	-	-	-	-
61B Propeller Pitch Control	X/-	X	-	X	X	X	-	-	-	-	-
61C Propeller Synchronising	X/-	X	-	-	-	X	-	-	-	X	-
61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/-	X	-	X	X	X	-	-	-	-	-
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X
Military-Specific Systems											
92 Radar	X/X	X	X	X	X	-	X	X	X	X	X
93 Surveillance	X/X	X	X	X	X	-	X	X	X	X	X
94 Weapon system	X/X	X	X	X	X	-	X	X	X	X	X
95 Crew escape and Safety	X/X	X	X	X	X	X	X	X	X	X	-

Superseded

97 Image recording	X/X	X	X	X	X	-	X	X	X	X	X
99 Electronic Warfare	X/X	X	X	X	X	-	X	X	X	X	X

4. **Military Aircraft Type Training examination and assessment standard**

4.1 Theoretical element examination standard

After the theoretical portion of the Military Aircraft Type Training has been completed, a written examination shall be performed, which shall comply with the following:

a. Format of the examination is of the multi-choice type. Each multi-choice question shall have at least 3 alternative answers of which only one shall be the correct answer. The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.

b. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.

c. In numerical questions, the incorrect answers shall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They shall not be mere random numbers.

d. The level of examination for each chapter (*) shall be the one defined in point 2 "Military Aircraft Type Training levels". However, the use of a limited number of questions at a lower level is acceptable.

e. The examination shall be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate’s ability to interpret technical documents.

f. The number of questions shall be at least 1 question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:

i. the effective training hours spent teaching at that chapter and level,

ii. the learning objectives as given by the training needs analysis.

The MAA will assess the number and the level of the questions when approving the course.

g. The minimum examination pass mark is 75 %. When the Military Aircraft Type Training examination is split in several examinations, each examination shall be passed with at least a 75 % mark. In order to be possible to achieve exactly a 75 % pass mark, the number of questions in the examination shall be a multiple of 4.

h. Penalty marking (negative points for failed questions) is not to be used.

i. End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

(*) For the purpose of this point 4, a "chapter" means each one of the rows preceded by a number in the table contained in point 3.1(e).

Superseded

4.2 Practical element assessment standard ☐ **AMC**

After the practical element of the Military Aircraft Type Training has been completed, an assessment must be performed, which must comply with the following:

a. The assessment shall be performed by designated assessors appropriately qualified.

b. The assessment shall evaluate the knowledge and skills of the trainee.

5. **Type examination standard**

NOT APPLICABLE.

6. **On the Job Training** ☐ **AMC**

On the Job Training (OJT) shall be approved by the MAA who has issued the MAML.

It shall be conducted at and under the control of a maintenance organisation appropriately approved for the maintenance of the particular aircraft type and shall be assessed by designated assessors appropriately qualified.

It shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

a. Objective:

The objective of OJT is to gain the required competence and experience in performing safe maintenance.

b. Content:

OJT shall cover a cross section of tasks acceptable to the MAA. The OJT tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex maintenance tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Each task shall be signed off by the student and countersigned by a designated supervisor. The tasks listed shall refer to an actual job card/work sheet, etc.

The final assessment of the completed OJT is mandatory and shall be performed by a designated assessor, appropriately qualified.

The following data shall be addressed on the OJT worksheets/logbook:

1. Name of Trainee;

2. Date of Birth;

3. Service Number or Employee Number

4. Approved Maintenance Organisation;

5. Location;

6. Name of supervisor(s) and assessor, (including MAML number if applicable);

7. Date of task completion;

Superseded

8. Description of task and job card/work order/tech log, etc.;

9. Aircraft type and aircraft registration;

10. Military Aircraft Type Rating applied for.

In order to facilitate the verification by the MAA, demonstration of the OJT shall consist of:

(i) detailed worksheets/logbook and

(ii) a compliance report demonstrating how the OJT meets the requirement of DASR 66.

Appendix IV to DASR 66 - Experience requirements for an addition to a DASR 66 Military Aircraft Maintenance Licence

The table below shows the experience requirements for adding a new category or subcategory to an existing DASR 66 MAML including military-specific modules.

The experience shall be practical maintenance experience on operating aircraft in the subcategory relevant to the application.

The experience requirement will be reduced by 50% if the applicant has completed an approved DASR 147 course relevant to the subcategory.

To **From**	**A1**	**A2**	**A3**	**A4**	**B1.1**	**B1.2**	**B1.3**	**B1.4**	**B2**
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	2 years
A4	6 months	6 months	6 months	—	2 years	1 year	2 years	6 months	2 years
B1.1	None	6 months	6 months	6 months	—	6 months	6 months	6 months	1 year
B1.2	6 months	None	6 months	6 months	2 years	—	2 years	6 months	2 years
B1.3	6 months	6 months	None	6 months	6 months	6 months	—	6 months	1 year

Superseded

B1.4	6 months	6 months	6 months	None	2 years	6 months	2 years	—	2 years
B2	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	—

Appendix V to DASR 66 – Application Form – DASR Form 19

DASR Form 19 is contained in the DASR Forms document.

Appendix VI to DASR 66 – Military Aircraft Maintenance Licence (MAML) – DASR Form 26

DASR Form 26 is contained in the DASR Forms document.

Superseded

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. ☐ **GM**

147.A.15 - Application

☐ **AMC**

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. ☐ **AMC** ☐ **AMC1**

Superseded

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of

Superseded

persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ AMC ☐ GM

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ AMC

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ AMC ☐ AMC1 ☐ GM

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ AMC ☐ GM

147.A.110 - Records of instructors, examiners and assessors

☐ AMC ☐ GM

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ AMC ☐ GM

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ AMC

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ GM

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ AMC

Superseded

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

Superseded

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.
2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).
3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.
4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.
5. A list of the instructors, knowledge examiners and practical assessors.
6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).
7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**
8. The MTO's exposition amendment procedure.
9. The MTO's procedures, as required by DASR 147.A.130(a).
10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).
11. A list of the locations pursuant to DASR 147.A.145(b).
12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

Superseded

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

Superseded

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and
2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**
3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

Superseded

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Superseded

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

Superseded

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

Superseded

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A

Superseded

2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend,

Superseded

vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Superseded

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.

Superseded

- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.
- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.

Superseded

- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;

Superseded

- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine,

Superseded

Invigilator Practical Assessor		Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

Superseded

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

Superseded

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MMYY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

SUBPART A - GENERAL

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. **GM**

147.A.15 - Application

AMC

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. **AMC** **AMC1**

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

Superseded

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ **AMC** ☐ **GM**

Superseded

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ **AMC**

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ **AMC** ☐ **GM**

147.A.110 - Records of instructors, examiners and assessors

☐ **AMC** ☐ **GM**

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ **AMC** ☐ **GM**

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ **AMC**

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ **GM**

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ **AMC**

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

Superseded

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination

Superseded

declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.

2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).

3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.

4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.

5. A list of the instructors, knowledge examiners and practical assessors.

6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).

7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**

8. The MTO's exposition amendment procedure.

9. The MTO's procedures, as required by DASR 147.A.130(a).

10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).

11. A list of the locations pursuant to DASR 147.A.145(b).

12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of

Superseded

the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

Superseded

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and
2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**
3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

Superseded

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in

Superseded

Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

Superseded

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

Superseded

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have

Superseded

quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Superseded

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

Superseded

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.

Superseded

- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Superseded

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the

Superseded

practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator Invigilator Practical Assessor		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

Superseded

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the

Superseded

production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

Superseded

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MM/YY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

SUBPART B - ORGANISATIONAL REQUIREMENTS

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. ☐ **GM**

147.A.15 - Application

☐ **AMC**

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. ☐ **AMC** ☐ **AMC1**

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

Superseded

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ **AMC** ☐ **GM**

Superseded

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ **AMC**

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ **AMC** ☐ **GM**

147.A.110 - Records of instructors, examiners and assessors

☐ **AMC** ☐ **GM**

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ **AMC** ☐ **GM**

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ **AMC**

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ **GM**

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ **AMC**

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

Superseded

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination

Superseded

declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.

2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).

3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.

4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.

5. A list of the instructors, knowledge examiners and practical assessors.

6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).

7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**

8. The MTO's exposition amendment procedure.

9. The MTO's procedures, as required by DASR 147.A.130(a).

10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).

11. A list of the locations pursuant to DASR 147.A.145(b).

12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of

Superseded

the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

Superseded

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and

2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

Superseded

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in

Superseded

Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

Superseded

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

Superseded

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have

Superseded

quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Superseded

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

Superseded

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.

Superseded

- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Superseded

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the

Superseded

practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator Invigilator Practical Assessor		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

Superseded

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the

Superseded

production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

Superseded

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MMYY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

SUBPART C - APPROVED BASIC TRAINING COURSE

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. ☐ **GM**

147.A.15 - Application

☐ **AMC**

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. ☐ **AMC** ☐ **AMC1**

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

Superseded

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ **AMC** ☐ **GM**

Superseded

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ **AMC**

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ **AMC** ☐ **GM**

147.A.110 - Records of instructors, examiners and assessors

☐ **AMC** ☐ **GM**

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ **AMC** ☐ **GM**

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ **AMC**

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ **GM**

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ **AMC**

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

Superseded

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination

Superseded

declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.

2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).

3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.

4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.

5. A list of the instructors, knowledge examiners and practical assessors.

6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).

7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**

8. The MTO's exposition amendment procedure.

9. The MTO's procedures, as required by DASR 147.A.130(a).

10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).

11. A list of the locations pursuant to DASR 147.A.145(b).

12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of

Superseded

the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

Superseded

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and

2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

Superseded

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in

Superseded

Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

Superseded

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

Superseded

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have

Superseded

quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Superseded

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

Superseded

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.

Superseded

- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Superseded

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the

Superseded

practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator Invigilator Practical Assessor		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

Superseded

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the

Superseded

production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

Superseded

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MM/YY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. **GM**

147.A.15 - Application

AMC

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. **AMC** **AMC1**

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

Superseded

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ **AMC** ☐ **GM**

Superseded

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ **AMC**

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ **AMC** ☐ **GM**

147.A.110 - Records of instructors, examiners and assessors

☐ **AMC** ☐ **GM**

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ **AMC** ☐ **GM**

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ **AMC**

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ **GM**

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ **AMC**

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

Superseded

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination

Superseded

declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.

2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).

3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.

4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.

5. A list of the instructors, knowledge examiners and practical assessors.

6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).

7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**

8. The MTO's exposition amendment procedure.

9. The MTO's procedures, as required by DASR 147.A.130(a).

10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).

11. A list of the locations pursuant to DASR 147.A.145(b).

12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of

Superseded

the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

Superseded

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and

2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

Superseded

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in

Superseded

Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

Superseded

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

Superseded

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have

Superseded

quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Superseded

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

Superseded

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.

Superseded

- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Superseded

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the

Superseded

practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator Invigilator Practical Assessor		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

Superseded

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the

Superseded

production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

Superseded

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

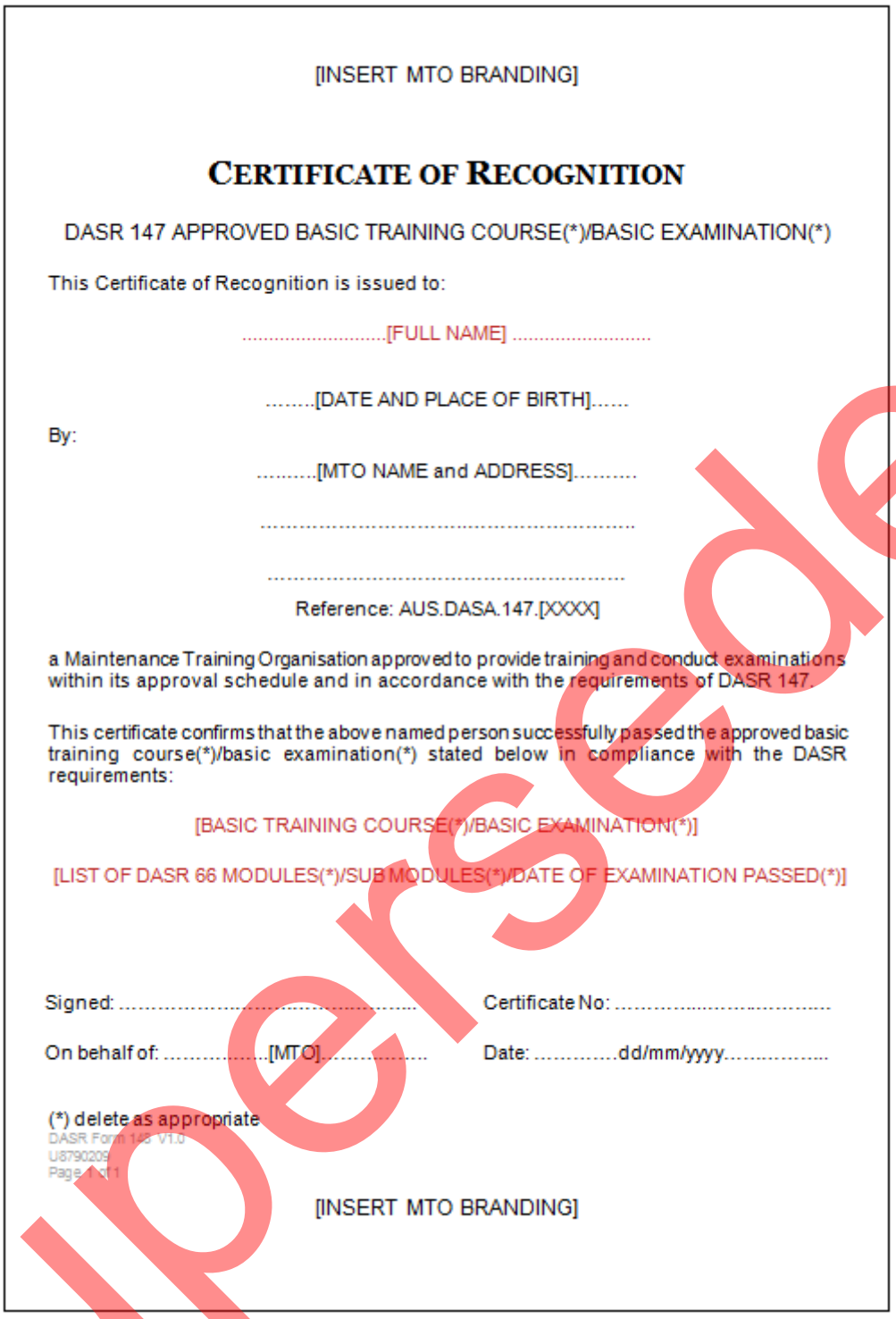
1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded



[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MM/YY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

Annexes/Appendixes

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. **GM**

147.A.15 - Application

AMC

(a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.

(b) An application for or for the change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the MTO requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the Accountable Manager;
5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

(a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.

(b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. **AMC** **AMC1**

1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.

Superseded

2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.

(c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.

(d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ☐ **AMC**

(e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).

(f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ☐ **AMC**

(g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.

(h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.

(i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ☐ **AMC** ☐ **GM**

147.A.105 - Personnel requirements

(a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ☐ **AMC**

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.

2. Establish and promote the quality policy specified in DASR 147.A.130(b).

3. Demonstrate a basic understanding of this DASR.

(b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ☐ **AMC** ☐ **GM**

Superseded

(c) The MTO shall contract/appoint sufficient staff to plan/perform knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ☐ **AMC**

(d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.

(e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).

(f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ☐ **AMC** ☐ **AMC1** ☐ **GM**

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ☐ **AMC** ☐ **GM**

147.A.110 - Records of instructors, examiners and assessors

☐ **AMC** ☐ **GM**

(a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ☐ **AMC** ☐ **GM**

(b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ☐ **AMC**

147.A.115 - Instructional equipment

(a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ☐ **GM**

(b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.

(c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ☐ **AMC**

(d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ☐ **AMC**

Superseded

147.A.120 - Maintenance training material

(a) Maintenance training course material shall be provided to the student and cover as applicable: ☐ **AMC** ☐ **AMC1** ☐ **AMC2**

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and

2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.

(b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ☐ **AMC** ☐ **GM**

147.A.130 - Training procedures and quality system

☐ **AMC**

(a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

(b) The MTO shall establish a quality system including: ☐ **AMC** ☐ **GM**

1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and

2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

(a) The examination staff shall ensure the security of all questions. ☐ **AMC**

(b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ☐ **AMC** ☐ **AMC1**

(c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination

Superseded

declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ☐ **AMC** ☐ **GM**

147.A.140 - Maintenance Training Organisation Exposition

☐ **AMC** ☐ **AMC1**

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.

2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).

3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.

4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.

5. A list of the instructors, knowledge examiners and practical assessors.

6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).

7. A list and details of the maintenance training courses which form the extent of the approval. ☐ **GM**

8. The MTO's exposition amendment procedure.

9. The MTO's procedures, as required by DASR 147.A.130(a).

10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).

11. A list of the locations pursuant to DASR 147.A.145(b).

12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ☐ **GM** ☐ **GM1**

(d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of

Superseded

the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

(a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ☐ **AMC**
2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable. ☐ **AMC**

(b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.

(c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.

(d)

1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ☐ **AMC** ☐ **GM** ☐ **GM1**
3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ☐ **GM**

(e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

(a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.

Superseded

(b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.

(c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

(a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:

1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ☐ **AMC**; and

2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ☐ **AMC**

3. The certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to GR.60 Oversight and enforcement.

SUBPART C - APPROVED BASIC TRAINING COURSE

☐ **AMC to Subpart C**

147.A.200 - The approved basic training course

(a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.

(b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ☐ **AMC** ☐ **AMC1**

(c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.

(d) The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ☐ **AMC**

(e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.

(f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with Annex A to AMC 147.A.140. ☐ **AMC** ☐ **AMC1**

Superseded

(g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ☐ **AMC** ☐ **AMC1**

(a) Be in accordance with the standard defined in DASR 66.

(b) Be conducted without the use of training notes.

(c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

(a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.

(b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ☐ **AMC**

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ☐ **AMC**

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.

2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in

Superseded

Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.

4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

TABLE OF CONTENT

PART 0 – GENERAL ORGANISATION

0.1. List of effective pages

0.2. List of issues / amendments / record of revisions

0.3. Distribution List

0.4. DASR 147 requirements cross-reference list

0.5. General information

PART 1 – MANAGEMENT

1.1. Corporate commitment by the Accountable Manager

1.2. Management personnel

1.3. Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1. Accountable Manager

1.3.2. Training Manager

1.3.3. Quality Manager

1.3.4. Examiner

1.3.5. Instructor

1.3.6. Practical Assessor

1.4. Management personnel organisation chart

1.5. List of instructional and examination staff

1.6. List of approved addresses

1.7. List of contracted / tasked organisations as per DASR 147.A.145(d)

1.8. General description of facilities at paragraph 1.6 addresses

Superseded

1.9. Specific list of courses and aircraft type examinations approved by the DASA

1.10. Notification procedures regarding changes to MTO

1.11. MTOE and associated manuals amendment procedure

PART 2 – TRAINING AND EXAMINATION PROCEDURES

2.1. Organisation of courses

2.2. Preparation of course material

2.3. Preparation of classrooms and equipment

2.4. Preparation of workshops / maintenance facilities and equipment

2.5. Conduct of theoretical training and practical training (during basic knowledge training and aircraft type / task training)

2.6. Records of training carried out

2.7. Storage of training records

2.8. Training at locations not listed in paragraph 1.6

2.9. Organisation of examinations

2.10. Security and preparation of examination material

2.11. Preparation of examination rooms

2.12. Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

2.13. Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

2.14. Marking and record of examinations

2.15. Storage of examination records

2.16. Examinations at locations not listed in paragraph 1.6

2.17. Preparation, control and issue of basic / type training course certificates

2.18 Control of contracted / tasked organisations

PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

3.1. Audit of training

3.2. Audit of examinations

3.3. Analysis of examination results

3.4. Audit and analysis remedial action

Superseded

3.5. Accountable Manager annual review

3.6. Qualifying the instructors

3.7. Qualifying the examiners and the practical assessors

3.8. Records of qualified instructors, examiners and practical assessors

PART 4 – APPENDICES

4.1. Example of documents and forms used

4.2. Syllabus and Training Needs Analysis (TNA) of each training course

4.3. Cross-reference index

NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	.....

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval
	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have

Superseded

quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,… or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed .....

Dated .....

Superseded

Accountable Manger and .....(quote position).....

For and behalf of .....(quote MTO name).....

1.2 – Management personnel

Accountable Manager .....

Training Manager .....

Quality Manager .....

Examination Manager .....

Other (as required) .....

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on DASR Form 4 to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

Superseded

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.
- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.

Superseded

- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

Superseded

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc…), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc…).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the

Superseded

practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absenceList of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	**NAME:**	**COMPETENCIES:**
Training Manager Deputy Training Manager Quality Manager Examiner Examiner / Instructor Instructor Instructor Instructor Instructor / Invigilator Invigilator Practical Assessor		enter here those areas each person is qualified to instruct using DASR 66 module / sub-modules OR type of aircraft and the specific areas they are qualified to instruct, ie Airframe, Engine, Electrical Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/ sub-module.

Superseded

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/ tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists… and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the

Superseded

production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

Superseded

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

Superseded

DASR 147 MAINTENANCE TRAINING ORGANISATION

Ref:
APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE

Type of Training/Examinations:* _____

Date of Training/Examinations:* _____

Proposed Location: _____

Reason for Application: _____

I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.

Quality Representative: Name: _____

Signature: _____

Date: _____

Ref: DASR 147.A.100 to DASR 147.A.135

* DELETE AS REQUIRED

For DASA Use:

Application approved:

Application not approved:

Reason:

DASA Representative: Name: _____

Signature: _____

Date: _____

Superseded

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,…), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Superseded

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one

Superseded

list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.
- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.

Superseded

- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope
- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

Superseded

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASR 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan
- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form

Superseded

- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)
A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960

Superseded

B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)
B2 (Module 50-55 Extensions)	-	-	(See Note 1)

Superseded

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ☐ AMC

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

Superseded

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME] .....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 147 V1.0
U8790209
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionic/electrical or military specific systems only) or a difference

course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed: ..... Certificate No: .....

On behalf of: .....[MTO]..... Date: .....dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0
DD/MM/YY
Page 1 of 1

[INSERT MTO BRANDING]

Superseded

DASR Aircrew

AIRCREW.10 - DEFENCE AIRCREW QUALIFICATIONS AND TRAINING

(a) The MAO must ensure an aircrew training system is established that supports raise, train, sustain requirements and includes the following elements: ☐ **GM**

1. Categorisation system, defining: ☐ **AMC** ☐ **GM**
   a) level of proficiency in a role
   b) Aircrew categories
   c) currency and recency requirements.
2. Basic Qualifications ☐ **AMC**
3. Additional qualifications ☐ **AMC**
4. Airborne emergency training: ☐ **AMC**
   a) is only to be conducted in aircraft to the extent defined in OIP
   b) is to be conducted in a simulator to the maximum extent practicable.
5. Currency and recency requirements, which include: ☐ **AMC**
   a) minimum currency criteria
   b) methods of maintaining and regaining currency
   c) identification of circumstances and authority for extension.
6. Method of recording competency and currency, which must: ☐ **AMC**
   a) list in the approved OIP the authority(ies)
   b) utilise a recording method in a format determined to be enduring.
7. Aircrew Instructor training and standards requirements, which include: ☐ **AMC**
   a) qualifications through Defence-recognised courses
   b) routine instructor competency assessments.
8. Training and standards requirements, which: ☐ **AMC**
   a) reference the applicable Learning Management Plan
   b) for aircrew competency include:
      – competency for all aircraft roles and operations
      – training and assessment requirements for initial award and maintenance of competency

Superseded

– criteria that define a lapse in competency, including the requirements for requalification.

c) include the establishment of a Pilot Instrument Rating Scheme (PIRS) to support safe aircraft operation during IMC. PIRS controls must include:

– command responsibility to determine the conduct of an Instrument Rating Test (IRT), including consultation with CFS SME

– experience, currency and recency, and renewal requirements

– flexible use of command to ensure that those pilots who, for various reasons, are not entitled to an Instrument Rating, may still fly under restricted conditions

– employment strategy of relevant Assessors

– flexibility provisions that can be authorised by the command chain

– a system to ensure complete documentation of all testing and qualification awards.

(a) The MAO must ensure that aviation safety training is conducted in accordance with approved OIP that includes: ☐ **AMC** ☐ **GM**

1. aviation safety training objectives and assessment criteria

2. requirements for currency and re-qualification.

(a) The MAO must ensure that Risk Management training is conducted in accordance with approved OIP. ☐ **AMC**

(a) All aircrew must maintain a Defence flying logbook. ☐ **GM**

(b) OIP issued under this regulation shall specify a method to: ☐ **GM** ☐ **AMC**

1. record the member's endorsed qualifications

2. record all flight time undertaken as authorised crew or flight crew of a military aircraft, a civil aircraft under hire or lease to Defence, or a civil aircraft provided for any other military purpose

3. record flight time in approved FSTDs

4. ensure the logbook of an authorised crew or flight crew member is not carried on an aircraft when the member is flying on that aircraft.

(c) In the event of an accident or incident, the operating unit commander must provide all involved aircrew logbooks to an authorised person upon request. ☐ **GM**

Superseded

AO.GEN.00 - REGULATION RULES OF INTERPRETATION

☐ **GM**

AO.GEN.05 - MANAGEMENT OF OIP

(a) The Orders, Instructions and Publications (OIP) Management System must ensure that all air operational OIP are: ☐ **GM**

1. applicable, accurate and approved
2. maintained in good and legible order
3. accessible to personnel in a format and medium appropriate to the operational environment
4. applicable to the scope and level of the operation being conducted
5. supported by a master document or record allowing the amendment status and document completeness to be ascertained.

(b) The OIP Management System must ensure that each Defence produced document contains or displays:

1. authority for use
2. document name
3. document number
4. date of issue and currency (amendment status)
5. sponsor details.

(c) For OIP specific to aircraft type, the OIP Management System must ensure that:

1. OIP sponsors are appointed to ensure all OIP are applicable and authorised.
2. There are documented agreements established with the relevant Military Type Certificate (MTC) holder, or MTC holder delegate to ensure that any amendments to the aircraft flight manual, or OIP that affect operating instructions, aircrew and/or limitations, are approved by the Authority or the MTC holder or MTC holder delegate.
3. Foreign Source Data (FSD), other than that incorporated into the authorised publication management systems (AAP, NAP or DAP), are approved by the MAO, or relevant MTC holder or MTC holder delegate prior to use.

(d) OIP issued under this regulation must ensure that: ☐ **GM** ☐ **AMC**

1. OIP management appointments are identified, including their responsibility and authority.

Superseded

2. A list of OIP sponsors and approval authorities is maintained.

3. A list of OIP Sponsor approved sources of Flight Information Document (FID) is maintained.

4. Periodic review criteria are defined (Defence AIP will follow the 28 day AIRAC cycle).

5. Publication management records are accurately maintained, controlled and made accessible to applicable personnel and organisations.

6. OIP distribution requirements are defined.

Superseded

(a) A Statement of Operating Intent and Usage must be issued for all Defence registered aircraft types. ☐ **GM** ☐ **AMC**

(a) The MAO, or operational commander must cease Flight Operations under their command or management where an emergent risk compromises Aviation Safety. ☐ **GM** ☐ **AMC**

(a) An aircraft operated by or on behalf of Defence must be considered for Defence registration when: ☐ **GM**

1. The aircraft is predominantly operated in a military configuration, role or environment by Defence or non-Defence personnel.
2. The aircraft is owned by Defence.
3. The aircraft is predominantly operated by members of Defence in the course of their duties.

☐ **GM**

(a) Operation of all Defence registered aircraft must be conducted under the authority of a Military Air Operator Certificate (MAOC), issued by the Authority. ☐ **GM**

(b) Operation of civil registered aircraft by a MAO must be conducted under the authority of a MAOC, issued by the Authority. ☐ **GM**

(c) The applicant organisation must apply to the Authority for issue of, or a variation to, a MAOC or attached Operations Specification (OpSpec) by submitting a Military Air Operator's Operations Compliance Statement (OCS). The OCS must: ☐ **GM** ☐ **AMC**

1. include the following information:
   - i. the MAO organisation name
   - ii. the location of the MAO headquarters
   - iii. a statement that operations will be in accordance with the attached OpSpec
   - iv. Accountable Manager (AM)
   - v. Continuing Airworthiness Manager (CAM)
   - vi. Hazard Tracking Authority (HTA)

Superseded

vii. all Aircraft types operated by the MAO

viii. Aircraft roles in accordance with SOIU CRE

ix. specific approvals requested for Aircraft operated by the MAO.

2. identify reference to an approved SOIU for each Aircraft type operated

3. provide a summary of the status of each element of the Flying Management System required by DASR ORO.10

4. identify the availability and method of document control for MAO OIP and single Service OIP, necessary to safely conduct Flight Operations

5. identify the approval status of training and qualification requirements necessary for personnel to support Flight Operations in the required CRE

6. identify the approval status of FSTD requirements necessary to support flying operations in the required CRE

7. confirm suitable and competent personnel to support Flight Operations

8. confirm suitable operations facilities and buildings are available for use

9. utilise a Quality Management System (QMS) to achieve consistency, continuity and compliance of safe operations—through quality planning, quality assurance, quality control and quality improvement ☐ **GM** ☑ **AMC**

10. identify that the MAO can satisfactorily maintain the Airworthiness of Aircraft types listed on the certificate through a Continuing Airworthiness Management Organisation (CAMO)

11. demonstrate how the MAO will comply with DASR relevant to the operation

12. include an attestation by the AM that:

i. the AM is accountable for the organisation's compliance with DASR

ii. the OCS is complete and correct

iii. appropriate arrangements are in place to support the scope of Flight Operations contained in the OpSpec.

(d) An air operator must establish and maintain a Safety Management System (SMS), in accordance with DASR SMS.

Superseded

FSTD.05 - FLIGHT SIMULATION TRAINING DEVICE MANAGEMENT

(a) The MAO-AM must approve a Flight Simulation Training Device Installation Operating Permit prior to use of the Flight Simulation Training Device in support of flight crew training, qualification or currency. ☐ **GM** ☐ **AMC**

(b) The MAO must ensure a Flight Simulation Training Device Management System is established that details the implementation and ongoing in service management of the Flight Simulation Training Device. ☐ **GM** ☐ **AMC**

Superseded

FT.05 - FLIGHT TESTS (AUS)

(a) A Military Air Operator (MAO) conducting flight test activities shall only conduct a flight test activity of Category 1 to Category 4 as defined in DASR 21 Subpart P - Military Permit to Fly, if an appropriate privilege has been granted in the MAOC OpSpec. ☐ **AMC** ☐ **GM**

(b) Flight test activity meeting the criteria of Category 1 to 4 as defined in DASR 21 Subpart P must be conducted under the authority of a Military Permit to Fly (MPTF). ☐ **AMC** ☐ **GM**

(c) The MAO must seek advice from the Authority if there is any doubt with respect to the category of flight test. ☐ **AMC**

(d) The MAO must demonstrate that it has the organisation, personnel and processes to safely conduct flight test to the satisfaction of the Authority and within the scope of privileges for flight test as listed in the Military Air Operator Certificate OpSpec. ☐ **AMC** ☐ **GM**

(e) The MAO must provide the Authority with appropriate data and access to its organisation, when required. ☐ **GM**

Superseded

NDR.05 - OPERATION OF NON DEFENCE REGISTERED AIRCRAFT BY DEFENCE ORGANISATIONS

(a) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non-Defence registered aircraft by or on behalf of Defence must ensure the aircraft's operation is subject to the regulatory requirements of a Defence AA recognised CAA / MAA. ☐ **GM** ☐ **AMC**

(b) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non-Defence registered aircraft by or on behalf of Defence must implement safety controls to the operation of non-Defence registered aircraft such that it is reasonably expected that Aviation Safety will not be compromised. ☐ **GM** ☐ **AMC**

(c) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non–Defence registered aircraft by, or on behalf of Defence must suspend flight operations when Aviation Safety is believed to be compromised. ☐ **GM** ☐ **AMC**

(d) The Defence AA must approve any Defence operation of a non–Defence registered aircraft to be operated under an Experimental Certificate of Airworthiness. ☐ **GM** ☐ **AMC**

(a) Defence personnel that operate a non-Defence registered aircraft on behalf of Defence must comply with the Defence AA recognised CAA or MAA regulatory requirements and any further controls imposed by the relevant Sponsor. ☐ **GM** ☐ **AMC**

Superseded

(a) Defence registered aircraft must be operated: ☐ **GM**

1. within the approved Statement of Operating Intent and Usage (SOIU) and Configuration, Role and operating Environment (CRE) parameters
2. in accordance with the Type Certificate and MAOC limitations
3. in accordance with the procedures in Defence AIP, except as required by the CAA of the state of operation
4. as detailed in the Aircraft Flight Manual and applicable OIP
5. in accordance with Defence OIP, and
6. at certified aerodromes, non-certified aerodromes and any other non-defined areas where it is safe to do so. ☐ **GM**

(a) The MAO must ensure a flying management system (FMS) is maintained that includes: ☐ **GM**

1. appointment of key staff
2. management of the Statement of Operating Intent and Usage (SOIU)
3. aircrew competency
4. flight authorisation
5. Risk Management
6. aviation safety management
7. management of Orders, Instructions and Publications (OIP)
8. management of Flight Simulation Training Devices (FSTD).

(a) The MAO must ensure that OIP issued under this regulation includes: ☐ **GM**

1. key appointments in the management of flying operations are identified
2. the initial and continuing eligibility criteria for each appointment are identified
3. the responsibility and authority of each appointment is clear and unambiguous
4. appointed individuals receive written authorisation which includes any limitations to their responsibility or authority.

Superseded

☐ **GM**

(a) The MAO or Sponsor must utilise a defined Flying Supervision and Flight Authorisation (FLTAUTH) management system to ensure Aviation Safety for Defence Aircraft, as follows:

1. Initial Airworthiness and Continuing Airworthiness risk controls must be considered by reviewing the planned Flight against the requirements of DASR ORO.05 and, where applicable:

   i. OpSpec limitations defined though DASR ARO.100

   ii. the Flight conditions imposed through DASR 21.A.708, in respect of any approved Military Permit To Fly (MPTF)

   iii. risk controls as required by DASR SPA.10, in respect of any approved Command Clearance

   iv. the Flight conditions imposed through DASR M.A.301(a)2, in respect of any approved deferred defects

   v. for Non-Defence Registered Aircraft (NDRA), the risk controls required by the relevant CAA or MAA. ☐ **GM**

2. Flying Supervision management risk controls must be utilised. ☐ **GM** ☐ **AMC**

3. FLTAUTH system risk controls must be utilised, and include the following: ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **GM4** ☐ **AMC**

   i. the provision of a FLTAUTH mechanism for the identification of potential Hazards and controls independent of the Aircraft Captain

   ii. by way of exception from ORO.30(a)3(i), self-authorisation provisions may apply as follows:

      a. Under certain circumstances a Flight Authorisation Officer (FLTAUTHO) may authorise Flights where they are acting as the Aircraft Captain, commonly referred to as 'self–authorisation'. ☐ **AMC**

      b. ADF Currency Flying Scheme (ACFS) participants, unless the Sponsor directs otherwise, must 'self-authorise'. ☐ **AMC**

   iii. the FLTAUTHO must have gained an initial category on Type to undertake FLTAUTH duties on the relevant Type

   iv. by way of exception from ORO.30(a)3(iii):

      a. the MAO-AM may issue a waiver against the requirement to have gained an initial category on Type if the FLTAUTHO holds, or has held, a category on Type for a similar Aircraft, or is assessed to possess the technical mastery required to compensate for the lack of a specific category on Type.

      b. an approved Flight Test organisation is exempt from category on Type requirements for Flight Test activities where the FLTAUTHO both:

Superseded

(1) holds a DASR AIRCREW.10 Flight Test (Flight Test Pilot or Flight Test System Specialist) or Flight Test Engineer qualification relevant to the Flight Test activity

(2) has been informed as to the Type Specific considerations relevant to the Flight. ☐ **GM**

v. the FLTAUTHO and Aircraft Captain must certify the FLTAUTH record before Flight

vi. by way of exception from ORO.30(a)3(v), FLTAUTH or changes to FLTAUTH may be given verbally or via electronic means. However:

a. the details of any verbal FLTAUTH should be recorded in the FLTAUTH record as soon as practicable

b. wherever possible, the Aircraft Captain or FLTAUTHO should leave a written record on the ground with a responsible person, or an electronic record, of a verbal FLTAUTH prior to the Flight, as directed by the FLTAUTHO.

(b) **Non-Defence Registered Aircraft (NDRA).** By way of exception from ORO.30(a), for NDRA Flights that are solely conducted by non-Defence Flight Crew, the requirements of ORO.30(a) do not apply.

☐ **GM**

(a) The MAO must establish an ALSE management system to enable the acquisition, integration and use of ALSE. ☐ **GM**

(b) Prior to to approving ALSE, the MAO must ensure:

1. that the ALSE is certified. ☐ **GM**

2. the ongoing use of ALSE is risk-managed under the MAO SMS, seeking Subject Matter Expert (SME) advice to identify and manage ALSE hazards. ☐ **GM**

3. that maintainers and operators of ALSE are trained and their continued competence in its use can be demonstrated. ☐ **GM**

4. the OIP contain when ALSE is to used / operated / carried. ☐ **GM**

☐ **GM**

(a) Defence registered aircraft must be crewed in accordance with minimum and normal crew compositions promulgated by the MAO. ☐ **GM**

(b) Aircraft crews operating Defence registered aircraft must be trained, qualified, competent and authorised in accordance with DASR AIRCREW.

Superseded

(c) Foreign military aircrew operation of Defence registered aircraft must only be approved by the MAO on the basis that the aircraft will be operated in accordance with the requirements of a Defence FMS.

(d) Civilian aircrew operation of Defence registered aircraft must only be approved by the MAO on the basis of: ☐ **GM**

1. Identification and attainment of prerequisite civil and military training, qualifications and competency.
2. Familiarity and adherence to applicable Defence, single-Service and type related OIPs.
3. Identification and provision of flying clothing and ALSE necessary to crew the aircraft type.
4. Approval is provided under the appropriate flight authorisation system.

☐ **GM**

(a) An aircraft captain must be assigned for each flight and must be one of the following:

1. a qualified pilot endorsed on the aircraft type and certified as a captain by the commander of the operating unit
2. a qualified pilot undergoing an approved conversion training course on the aircraft type
3. a trainee pilot undergoing an approved pilot training course.

(b) An aircraft captain is responsible for the safe and effective operation of the aircraft in carrying out the assigned task. ☐ **GM** ☐ **AMC**

(c) An aircraft captain must:

1. ensure they have received sufficient pre-flight detail by way of tasking information, authorisation guidance, mission briefing, or curriculum description
2. conduct an adequate pre-flight briefing for any crew
3. ensure the aircraft and ancillary equipment is serviceable, a certificate of release to service has been issued at the completion of any maintenance and the aircraft accepted for the flight
4. ensure the requirements of all OIPs relating to the aircraft and its operation are observed and obeyed
5. ensure the flight is conducted in accordance with authorised sequences, and relevant OIP
6. deal with occurrences outside the scope of the flight authorisation in accordance with the flight manual, SI and the principles of good airmanship
7. use all the resources at their disposal to ensure the safe recovery of their aircraft, crew and passengers

Superseded

8. contact the authorising officer for advice and guidance when necessary to deviate from the flight authorisation given, as soon as circumstances allow

9. conduct a post-flight crew debrief

10. notify the authorising officer of any unusual occurrences or deviations from the flight authorisation

11. comply with post-flight documentary requirements.

(d) OIP issued under this regulation must identify:

1. the responsibilities of aircraft captains

2. the authority of the aircraft captain in all circumstances relating to flying operations

3. the responsibilities of the aircraft captain in relation to cargo and passengers

4. considerations for flight authorisation regarding firearms and ammunition carried aboard Defence registered aircraft, the authorised degree of weapon readiness and method of carriage

5. the circumstances and requirements under which an in-flight transfer of captaincy may occur, including a mechanism to record the transfer in the appropriate documentation.

(a) The MAO must establish an oxygen management system that ensures appropriate provision and use of oxygen systems on Defence aircraft. ☐ **GM** ☐ **AMC**

(b) The MAO must ensure that flight crew who are occupants of flight crew seats on flight crew compartment duty use supplemental oxygen above 10 000 ft cabin altitude (CA). ☐ **GM** ☐ **AMC**

(c) The MAO must ensure passengers (to include parachutists) and crew not regulated under DASR ORO.60.B use supplemental oxygen whenever: ☐ **GM** ☐ **AMC**

1. flight above 10 000 ft CA but not above 13 000 ft CA exceeds 30 minutes, or

2. flight is above 13 000 ft CA.

(a) The MAO must ensure that portable electronic equipment (PEE) is only carried and used in accordance with approved Defence OIP that includes the requirements for their carriage and operation by aircrew and passengers: ☐ **GM**

(a) The MAO must ensure a system is established that assures the carriage of personnel in Defence aircraft will not compromise Aviation Safety. ☐ **GM** ☐ **AMC**

Superseded

(b) The MAO must establish a system that ensures a requirement to carry personnel using Non–standard Aircraft Restraint and Seating (NSARS) is such that risk is eliminated or otherwise minimised so far as is reasonably practicable. ☐ **GM** ☐ **AMC**

(c) The MAO must ensure that records of personnel carried in Defence aircraft are raised, maintained and preserved. ☐ **GM** ☐ **AMC**

☐ **GM**

(a) The MAO must ensure that aircraft role equipment is only carried and operated in accordance with approved OIP.

(a) The MAO must ensure Defence aircraft are fitted with flight recorder and locating equipment appropriate to its military CRE to: ☐ **GM** ☐ **AMC**

1. Locate aircraft and personnel in the event of an aircraft crash.
2. Provide data that can be downloaded, interpreted and analysed by approved personnel to assist in the prevention of further aviation safety occurrences.

Superseded

RoA.05 - RULES OF THE AIR

(a) COMAUSFLT/ COMD AVNCOMD/ ACAUST must ensure that the Rules of the Air as they apply to Defence Aviation as stipulated within Defence AIP are harmonised with ICAO and national civil practice wherever practical in order to assure Defence Aviation interoperability with non-Defence aviation activities. ☐ **GM** ☐ **AMC**

Superseded

(a) The MAO must ensure promulgation of OIP that addresses, where applicable, rules and requirements relating to:

1. Flypasts and Display Flying [1]
2. formation flying
3. airborne emergency training
4. missions and tasks involving search and rescue and aeromedical evacuation [2]
5. missions and tasks involving civil and community support activities
6. missions and tasks involving use of automated flight control, Communication, Navigation and Surveillance (CNS) and Air Traffic Management Systems (ATMS)
7. flights involving interaction with UAS
8. any other task or mission which requires special consideration.

(b) Flying rules and requirements with applicability under this regulation must be based upon a Risk Management assessment.

SPA.10 - COMMAND CLEARANCE

☐ **GM**

(a) The MAO must maintain a Command Clearance management system for approval to operate an aviation system outside the system's configuration, role, environment, limitation or condition. ☐ **GM** ☐ **AMC**

(b) the Command Clearance management system shall specify requirements for the completion of a risk assessment prior to issue of a Command Clearance. ☐ **GM** ☐ **AMC**

(c) The MAO must ensure records of Command Clearances decisions are available to the Authority.

(a) The MAO must maintain a system for the conduct of Low Flying. ☐ **GM** ☐ **AMC**

(b) The MAO must ensure OIP includes low flying orders including: ☐ **AMC**

1. low flying areas
2. routes
3. minimum heights

Superseded

4. separation requirements

5. limitations of each aircraft type

6. use of any specialised equipment (such as Terrain-Following radar, GPWS, vision enhancing equipment).

☐ **GM**

(a) MAOs and UAS Operators must ensure Air Display - related risks are managed IAW DASR SMS. ☐ **GM** ☐ **AMC**

(b) For Flypasts, MAOs and UAS Operators must:

1. obtain approval from the relevant single-Service approval authority prior to conduct ☐ **GM** ☐ **AMC**

2. document in OIP, conduct and manoeuvre limitations ☐ **GM** ☐ **AMC**

3. restrict personnel on board the Aircraft to Crew and Mission Essential Passengers only

4. ensure the release of objects and use of ground special effects will not compromise Aviation Safety or pose a risk to other Aircraft and property. ☐ **GM** ☐ **AMC**

(c) For Display Flying, MAOs and UAS Operators must, in addition to the requirements for Flypasts, ensure:

1. Display Crew, Flying Display Directors (FDD), FLTAUTHO and Display Flying Supervisors (DFS) are:

   i. selected based on their skill, experience, qualifications and airmanship ☐ **GM** ☐ **AMC**

   ii. competent and current ☐ **GM** ☐ **AMC**

2. Display Flying is appropriately supervised ☐ **GM** ☐ **AMC**

3. Display Flying OIP includes:

   i. handling notes ☐ **GM** ☐ **AMC**

   ii. approved manoeuvres and Display Sequences specific to Aircraft Type ☐ **GM** ☐ **AMC**

   iii. conduct and manoeuvre limitations ☐ **GM** ☐ **AMC**

   iv. emergency response plans (ERP) appropriate to the scale of the event. ☐ **GM**

(a) The MAO must ensure a DLRO Management System is established. ☐ **GM** ☐ **AMC**

Superseded

SPA.50 – DEFENCE NAVIGATION APPROVALS (AUS)

☐ **GM**

(a) The MAO must obtain approval IAW DASR ARO.100 for the following Defence navigation Operations: ☐ **GM1** ☐ **GM2** ☐ **AMC**

1. Performance Based Navigation (PBN)
2. Reduced Vertical Separation Minima (RVSM)
3. North Atlantic High-Level Airspace (NAT HLA).

(b) The MAO must utilise navigation equipment and management, monitoring and alerting controls for Defence navigation Operations defined at DASR SPA.50(a), that: ☐ **GM** ☐ **AMC**

1. complies with initial Airworthiness and Aircraft eligibility ☐ **GM1** ☐ **GM2** ☐ **AMC**
2. ensures operations will not compromise Aviation Safety. ☐ **GM1** ☐ **GM2** ☐ **AMC1** ☐ **AMC2**

(c) The MAO must utilise defined training and Currency requirements IAW DASR AIRCREW.10 for all Defence navigation Operations. ☐ **GM**

SPA.55 – NIGHT VISION IMAGING SYSTEM (NVIS) (AUS)

☐ **GM**

(a) The MAO or Sponsor must utilise a defined Night Vision Imaging System (NVIS) to ensure Aviation Safety for Defence Aircraft when using Night Vision Devices (NVDs) as the primary means of vision for Safety Critical tasks. The defined NVIS must include:

1. Aircraft Type Design compatibility IAW DASR 21
2. compliance to approved equipment design requirements ☐ **GM** ☐ **AMC**
3. NVIS equipment and NVIS-specific aircraft components applicable to each Aircraft Type, which meets the: ☐ **GM** ☐ **AMC**
   i. requirements of DASR ORO.40
   ii. NVIS maintenance requirements promulgated in OIP approved by the MAO or Sponsor.
4. integration into DASR ORO.10 Flying Management System (FMS), to ensure: ☐ **GM** ☐ **AMC**
   i. NVIS Aircrew composition, qualifications, Currency and training are defined IAW DASR AIRCREW.10 ☐ **GM** ☐ **AMC**
   ii. Flight Authorisation system risk controls are utilised IAW DASR ORO.30 ☐ **GM**
   iii. Safety Management System (SMS) controls are utilised, incorporating:
      a. risk management IAW DASR SMS ☐ **GM** ☐ **AMC**
      b. fatigue management IAW DASR AVFM.20 ☐ **AMC**

Superseded

c. defined environmental minimums for Aircraft Type's roles and tasks ☐ **GM** ☐ **AMC**

d. defined minimum NVIS equipment required for aided Flight operations. ☐ **AMC**

iv. OIP details:

a. the illumination level below which additional Aircrew training, qualifications and hazard controls are required ☐ **GM** ☐ **AMC**

b. normal and emergency procedures for the Aircraft Type's roles and tasks ☐ **GM** ☐ **AMC**

c. instructions and limitations for the Aircraft Type's roles and tasks. ☐ **GM** ☐ **AMC**

Superseded

DASR SPO - Special Purpose Operations

SPO.00 - AVIATION SAFETY ASSESMENT

☐ GM

SPO.05 - JOINT PERSONNEL RECOVERY (JPR)

☐ GM

SPO.10 - AEROMEDICAL EVACUATION

☐ GM

Superseded

DASR UAS - Uncrewed Aircraft Systems

UAS.10 - UAS APPROVAL AND AUTHORISATION

☐ **GM1** ☐ **GM2** ☐ **GM3**

(a) Defence UAS must only be operated if authorised by the relevant Command or Defence Group. ☐ **AMC**

(b) Persons authorising and operators of a UAS must: ☐ **GM**

1. eliminate risk to the health and safety, So Far As is Reasonably Practicable (SFARP), to other air users, and to people and critical infrastructure on the ground or water, and
2. if it is not reasonably practicable to eliminate risk to health and safety, minimise those risks SFARP.

(c) All Defence UAS must operate in accordance with the requirements and limitations of Certified, Specific or Open category. ☐ **GM** ☐ **AMC1** ☐ **AMC2**

(d) Defence UAS must be either on the Defence Register when directed by the Authority, or on a local register. ☐ **AMC** ☐ **GM**

(e) Local registers raised in accordance with DASR.UAS.10.D must be made available to the Authority on request.

UAS.20 - CERTIFIED CATEGORY UAS

(a) UAS shall only be eligible for operation under Certified category if they: ☐ **GM**

1. are Defence registered in accordance with DASA.ARO.60.
2. have a Statement of Operating Intent and Usage (SOIU) in accordance with DASR.ARO.50
3. are Type Certified in accordance with DASR.21. ☐ **AMC**
4. comply with all initial airworthiness, and continuing airworthiness DASR
5. are operated under a Military Air Operator Certificate (MAOC) in accordance with DASR.ARO.100
6. comply with DASR Air Operations and DASR Standard Rules of the Air Regulation. ☐ **AMC**
7. are controlled by a RP who is a qualified military pilot, or qualified in accordance with requirements mandated by the MAO-AM. ☐ **AMC**

UAS.30 - SPECIFIC CATEGORY UAS

(a) UAS shall only be eligible for operation under Specific category if they are operated under either: ☐ **GM**

Superseded

1. a UASOP issued by the Authority (Specific Type A), or

2. a Standard Scenario published by the Authority (Specific Type B).

(b) Specific category UAS to be operated under a UASOP (Specific Type A) must: ☐ **GM1** ☐ **GM2** ☐ **AMC**

1. be registered in accordance with DASR.UAS.10.D

2. have its role and operating environment documented in an SOIU when directed by the Authority ☐ **GM** ☐ **AMC**

3. comply with DASR initial and continuing airworthiness regulations as directed by the Authority ☐ **AMC**

4. comply with the Military Air Operator requirements of DASR.ARO.100, to the extent directed by the Authority ☐ **AMC**

5. comply with DASR under Air Operations and Standard Rules of the Air to the extent directed by the Authority ☐ **AMC**

6. be controlled by a RP who is qualified as specified in the UASOP ☐ **AMC**

7. operate within the requirements and limitations included on the UASOP. ☐ **AMC**

(c) Specific category UAS to be operated under a Standard Scenario (Specific Type B) must: ☐ **GM** ☐ **AMC**

1. be operated only under Standard Scenarios in DASR.UAS.35

2. be notified to the Authority via submission of DASR Form 150 prior to commencement of UAS operations

3. be registered in accordance with DASR.UAS.10.D.

(a) **Standard Scenario for Micro UAS**. UAS operations under the Micro UAS Standard Scenario must comply with the following requirements and limitations: ☐ **GM**

1. UAS MTOW must not exceed 0.1 kg.

2. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.

3. Not operate in such a manner as to create an obstruction to another aircraft.

4. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ☐ **GM**

5. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ☐ **GM**

6. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.

7. Allow RP intervention during all stages of the flight. ☐ **GM**

Superseded

8. Employ suitable risk controls when operating: ☐ **AMC**

   i. beyond visual line of sight

   ii. outside of daylight hours

   iii. in cloud or reduced visibility

   iv. above 400 ft Above Ground Level (AGL)

(b) **Standard Scenario for Very Small UAS.** UAS operations under the Very Small UAS Standard Scenario must comply with the following requirements and limitations: ☐ **GM**

1. UAS MTOW must not exceed 2 kg.

2. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.

3. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.

4. Not operate in such a manner as to create an obstruction to another aircraft.

5. Not operate in controlled airspace higher than 400 ft AGL without approval of the relevant airspace authority. ☐ **GM**

6. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ☐ **GM**

7. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ☐ **GM**

8. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.

9. For each air vehicle, have a dedicated RP.

10. Allow RP intervention during all stages of the flight. ☐ **GM**

11. Employ suitable risk controls when operating: ☐ **AMC**

    i. beyond visual line of sight

    ii. outside of daylight hours

    iii. in cloud or reduced visibility

    iv. above 400 ft AGL

    v. within 30 m horizontally of GP

    vi. over populous areas

    vii. over or in proximity of critical infrastructure

    viii. within 3 nm (5.5 km) of the movement area of a controlled aerodrome.

(c) **Standard Scenario for Defence Ranges and Exercise Areas.** UAS operations under the Defence Ranges and Exercise Areas Standard Scenario must comply with the following requirements and limitations: ☐ **GM**

Superseded

1. Operate only in a Restricted Area or Military Operating Area that excludes non-participating Aircraft. ☐ **GM**

2. Operate only over:

   i. Defence Controlled Land, or

   ii. water designated for a planned Defence exercise only during that exercise period.

3. UAS MTOW must not exceed 150 kg.

4. Not operate in a Prohibited Area or Restricted Area unless approved by the authority controlling the area.

5. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.

6. Not operate in such a manner as to create an obstruction to another aircraft.

7. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ☐ **GM**

8. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ☐ **GM**

9. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.

10. For each air vehicle, have a dedicated RP.

11. Allow RP intervention during all stages of the flight. ☐ **GM**

12. Employ suitable risk controls when operating: ☐ **AMC**

    i. beyond visual line of sight

    ii. outside of daylight hours

    iii. in cloud or reduced visibility

    iv. above 400 ft AGL

    v. over or in proximity of MEP

    vi. over or in proximity of vessels in the exercise area

    vii. over or in proximity of critical infrastructure.

(d) **Standard Scenario for High Seas.** UAS operations under the High Seas Standard Scenario must comply with the following requirements and limitations: ☐ **GM**

1. Operate no closer than 12 nm to land, except for operations within 12 nm of rocks, shoals, and islands which have no permanent human inhabitants.

2. UAS MTOW must not exceed 150 kg.

3. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.

Superseded

4. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.

5. Not operate in such a manner as to create an obstruction to another aircraft.

6. Not operate in controlled airspace without approval of the relevant airspace authority.

7. Not operate in the approach or departure path of a ship's runway/landing area without approval from the relevant authority. ☐ **GM**

8. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.

9. For each air vehicle, have a dedicated RP.

10. Allow RP intervention during all stages of the flight. ☐ **GM**

11. Employ suitable risk controls when operating: ☐ **AMC**

    i. beyond visual line of sight

    ii. outside of daylight hours

    iii. in cloud or reduced visibility

    iv. above 400 ft Above Mean Sea Level (AMSL)

    v. over or in proximity of MEP

    vi. over or in proximity of vessels

    vii. over or in proximity of critical infrastructure.

(e) **Standard Scenario for Trials and Experimentation.** UAS operations under the Trials and Experimentation Standard Scenario must comply with the following requirements and limitations: ☐ **GM**

1. Operate only in a Restricted Area or Military Operating Area that excludes non-participating Aircraft. ☐ **GM**

2. Operate only over:

    i. Defence Controlled Land that precludes GP access, or

    ii. water where the UAS is not in the proximity of, or overhead of, GP.

3. Operate well clear of MEP, except where operation in their proximity is essential to a trial outcome. ☐ **GM**

4. Not operate in a Prohibited Area or Restricted Area unless approved by the authority controlling the area.

5. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.

6. Allow RP intervention during all stages of the flight. ☐ **GM**

7. Employ suitable risk controls when operating: ☐ **AMC**

Superseded

i. beyond visual line of sight

ii. outside of daylight hours

iii. in cloud or reduced visibility

iv. above 400 ft AGL

v. in proximity of MEP

vi. more than one UA per RP.

(f) **Standard Scenario for Weaponised UAS Evaluation** ☐ **GM1** ☐ **GM2**

1. The Standard Scenario for Weaponised UAS evaluation is exclusively for MAO use. ☐ **GM**

2. MAOs must conduct weaponised UAS operations: ☐ **AMC** ☐ **GM**

i. in an approved deterministic Range Danger Area (RDA) ☐ **GM**

ii. in Airspace that excludes all Aircraft except participating UAS ☐ **AMC**

iii. that contain the RDA in the Airspace designated for the activity ☐ **AMC**

iv. over a Defence Area or beyond Territorial Seas ☐ **AMC** ☐ **GM**

v. with risk controls implemented for MEP ☐ **AMC** ☐ **GM**

vi. with an RP who meets training, qualification and experience requirements defined by the relevant Command ☐ **AMC**

vii. crewed by a dedicated RP for each air vehicle

viii. that enables RP intervention during all stages of the Flight except for Lost Link and during Terminal Guidance. ☐ **AMC**

(a) Micro, Very Small and Small UAS shall only be eligible for operation under Open Category if they comply with the requirements and limitations contained in the following Standard Operating Conditions: ☐ **GM** ☐ **AMC**

1. **Micro UAS (< 0.1 kg) must:**

i. be operated within visual line of sight

ii. be operated no higher than 400 ft above ground level (AGL)

iii. be operated during daytime and not in cloud

iv. not operate in a way that creates a hazard to another aircraft, person or critical infrastructure

v. not operate in a Prohibited Area, or a Restricted Area unless approved by the authority controlling the area

vi. not operate in the movement area or the approach or departure path of a runway of an aerodrome/ship without approval from the relevant authority

Superseded

vii. not operate in such a manner as to create an obstruction to an aircraft

viii. be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group ☐ **AMC**

ix. allow RP intervention during all stages of the flight

x. be registered in accordance with DASR UAS.10.D.

2. **Very Small UAS (0.1–2 kg), in addition to the requirements and limitations for Micro UAS, must:**

i. not be operated within 30 m of the GP

ii. not operate over populous areas

iii. not operate within 3 nm (5.5 km) of the movement area of a controlled aerodrome without approval of the relevant airspace authority ☐ **AMC**

iv. not operate over an area where a fire, police or other public safety or emergency operation is being conducted without approval of the person in charge of the operation

v. for each air vehicle, have a dedicated RP.

3. **Small UAS (2–25 kg), in addition to the requirements and limitations for Very Small UAS, must:**

i. only operate over land/water controlled by Defence

ii. not operate in controlled airspace without approval of the relevant airspace authority.

(a) Integration of weapons onto Defence UAS must either: ☐ **GM**

1. require approval by the Authority, or ☐ **GM**

2. operate under the Standard Scenario for weaponised UAS evaluation in DASR UAS.35(f).

(b) Carriage of persons on Defence UAS shall require approval by the Authority. ☐ **GM**

(a) The operator of a UAS must report any identified UAS aviation safety event. ☐ **GM** ☐ **AMC**

(b) The operator of a UAS under any one of the following UAS categories must report any identified UAS aviation safety issue:

1. **Certified.**

2. **Specific Type A.** The Authority will define the minimum reporting requirements as part of the UASOP approval process.

Superseded

(a) Upon request, all data and access to support initial and on-going compliance assurance of UAS operations must be made available to the Authority. ☐ **GM**

Superseded

DASR 139 - Aerodromes

139.10 - General (AUS)

☐ **GM**

Scope. For these aerodrome regulations, the terms airport, airfield, airbase, land based or shipborne heliports are all considered appropriate when referring to an aerodrome.

(a) Defence Aerodromes must be classified as Certified or Non-certified as determined by the Authority.

(b) To operate a Certified Aerodrome, you must be an Aerodrome Operator (AD OPR) approved by the Authority.

139.20 - Organisational Approval (AUS)

☐ **GM**

(a) Certified aerodromes must only be operated by an approved Aerodrome Operator to approved standards and procedures as defined by the level and scope of the approval issued by the Authority.

139.30 - Requirements for Approval (AUS)

☐ **AMC** ☐ **GM**

(a) The applicant organisation seeking to achieve Aerodrome Operator approval must submit a Compliance Statement to the Authority.

139.40 - Organisational Structure (AUS)

(a) An Aerodrome Operator must define its organisational structure. ☐ **AMC** ☐ **GM**

139.50 - Aerodrome Manual (AUS)

(a) The Aerodrome Operator of a certified aerodrome must have an aerodrome manual that describes all relevant information and procedures that underpin the safe and effective use of the aerodrome. ☐ **AMC** ☐ **GM**

139.60 - Safety Management System (AUS)

(a) The Aerodrome Operator must establish and maintain a Safety Management System (SMS), for the operation of a Certified Aerodrome, in accordance with DASR.SMS. ☐ **AMC** ☐ **GM**

Superseded

139.70 - Quality Management System (AUS)

(a) An Aerodrome Operator must have and maintain a Quality Management System. ☐ **AMC** ☐ **GM**

139.80 - Aerodrome Certification (AUS)

☐ **GM**

AERODROME INITIAL CERTIFICATION

(a) To be issued an aerodrome certificate by the Authority, the applicant must:

1. Define the Authority-agreed certification basis for the aerodrome, ☐ **AMC** ☐ **GM**
2. demonstrate that the aerodrome design and construction complies with the agreed certification basis, ☐ **AMC** ☐ **GM**
3. Declare that the aerodrome design and construction complies with the agreed certification basis, ☐ **AMC** ☐ **GM**
4. Implement arrangements to support continued aerodrome compliance with the agreed certification basis, ☐ **AMC** ☐ **GM** and
5. Provide design information to support continuing safe operation of the aerodrome. ☐ **AMC** ☐ **GM**

CHANGES TO AERODROME CERTIFICATION

(b) Changes to the design or construction of a certified aerodrome must be presented to the Authority for certification, except where those changes have no appreciable effect on the safety of flight operations. ☐ **AMC** ☐ **GM**

139.90 - Maintenance of Aerodromes (AUS)

(a) The Aerodrome Operator must develop, document and undertake an aerodrome maintenance program to ensure the aerodrome remains in a condition to support safe flight operations. ☐ **AMC** ☐ **GM**

139.100 - Personnel Competency (AUS)

(a) Aerodrome Operators must ensure that personnel responsible for the conduct of activities in support of individual aerodromes are competent, qualified and authorised to undertake their duties. ☐ **AMC** ☐ **GM**

Superseded

DASR ABM - Air Battle Management

ABM.10 - ORGANISATIONAL APPROVAL (AUS)

☐ **GM**

(a) An Air Battle Management Operator (ABMO) must operate only to the extent approved in the ABMO Certificate (ABMOC) issued by DASA.

(b) As an exception from:

1. DASR ABM.10(a), a MAO that conducts ABM does not require a separate ABMO or OpSpec
2. DASR ABM does not apply to Joint Terminal Attack Controllers (JTACs).

ABM.20 - ABMO CERTIFICATE (AUS)

(a) An ABMO applicant organisation must utilise a Compliance Statement (CS) to apply to DASA for: ☐ **GM** ☐ **AMC**

1. issue of an ABMOC, or attached Operations Specification (OpSpec) ☐ **GM**
2. reissue of, or variation to an ABMOC, or attached OpSpec. ☐ **GM**

(b) As an exception from DASR ABM.20(a), a MAO that conducts ABM does not require a separate ABMOC or OpSpec. However, the MAO OpSpec and CS must reflect the scope of ABM operations provided IAW DASR ABM. ☐ **AMC**

ABM.30 - ORGANISATIONAL STRUCTURE (AUS)

(a) An ABMO must define its organisational structure to include: ☐ **GM** ☐ **AMC**

1. the authority, duties and responsibilities of all personnel performing ABMO functions, including the management personnel responsible for safety and quality management functions
2. the relationship and reporting lines between the personnel performing ABMO functions and other parts of the organisation
3. formal relationships with all other contributors to the ABMO that may directly influence the safety of their operations. ☐ **GM**

ABM.40 - SAFETY MANAGEMENT SYSTEM (SMS) (AUS)

(a) An ABMO must utilise an SMS in accordance with DASR SMS. ☐ **GM**

Superseded

ABM.50 - QUALITY MANAGEMENT SYSTEM (QMS) (AUS)

(a) An ABMO must utilise a QMS to achieve consistency, continuity and compliance of safe operations—through quality planning, quality assurance, quality control and quality improvement. ☐ **GM** ☐ **AMC**

ABM.60 - ORDERS, INSTRUCTIONS AND PUBLICATIONS (OIP) (AUS)

(a) An ABMO must utilise authorised ABM OIP. ABM OIP must contain the information required for the safe conduct of ABMOps. ☐ **GM** ☐ **AMC**

(b) ABM OIP must be easily accessible by relevant personnel.

ABM.70 - EQUIPMENT, SYSTEMS AND INSTALLATIONS (AUS)

DASR ABM.70 - Reserved.

ABM.80 - COMPETENCY MANAGEMENT (AUS)

(a) An ABMO must ensure personnel are competent and authorised to undertake their assigned ABM duties. ☐ **GM** ☐ **AMC**

Superseded

DASR ACD - Air Cargo Delivery

ACD.10 - ORGANISATIONAL APPROVAL (AUS)

☐ **GM1** ☐ **GM2** ☐ **GM3**

(a) An ACD Service Provider (ACDSP) must operate only to the extent approved in the ACDSP Certificate (ACDSPC) issued by DASA. ☐ **GM**

ACD.20 - ACDSP CERTIFICATE (AUS)

☐ **GM**

(a) An ACDSP applicant organisation must utilise a Compliance Statement (CS) to apply to DASA for: ☐ **GM1** ☐ **GM2** ☐ **AMC1** ☐ **AMC2**

1. issue of an ACDSPC, or attached OpSpec ☐ **GM**
2. reissue of, or variation to, an ACDSPC, or attached OpSpec. ☐ **GM**

(b) As an exception from DASR ACD.10(a) and DASR ACD.20(a), a MAO that conducts ACD does not require a separate ACDSPC or OpSpec. However, the MAO Operations Specification (OpSpec) and CS must reflect the scope of ACD services provided IAW DASR ACD. ☐ **GM** ☐ **AMC**

ACD.30 - ORGANISATIONAL STRUCTURE (AUS)

(a) An ACDSP must define its organisational structure to include: ☐ **GM1** ☐ **GM2** ☐ **AMC**

1. the authority, duties and responsibilities of all personnel performing ACDSP functions, including the management personnel responsible for safety and quality management functions
2. the relationship and reporting lines between these personnel and other parts of the organisation
3. formal relationships with all other contributors to the service provision that may directly influence the safety of their services.

ACD.40 - SAFETY MANAGEMENT SYSTEM (SMS) (AUS)

(a) An ACDSP must utilise an SMS in accordance with DASR SMS. ☐ **GM**

ACD.50 - QUALITY MANAGEMENT SYSTEM (QMS) (AUS)

(a) An ACDSP must utilise a Quality Management System (QMS) to achieve consistency, continuity and compliance of safe service provision—through quality planning, quality assurance, quality control and quality improvement. ☐ **GM1** ☐ **GM2** ☐ **AMC1** ☐ **AMC2**

Superseded

ACD.60 - ACD OPERATIONS MANUALS (AUS)

☐ **GM**

(a) MAOs conducting ACD and ACDSPs must utilise authorised ACD operations manuals. ACD operations manuals must contain the instructions, procedures and information required for safe payload preparation, composition, configuration, loading, placement, restraint and unloading of the following ACD load types on Defence Aircraft: ☐ **GM1** ☐ **GM2** ☐ **GM3** ☐ **AMC1** ☐ **AMC2**

1. Passengers ☐ **GM**
2. General (standard) Cargo
3. Non-Standard Cargo. ☐ **GM** ☐ **AMC1** ☐ **AMC2**

(b) ACD operations manuals must detail procedures to ensure Aviation Safety (as relevant to the ACD load) for Defence Aircraft and must be easily accessible by relevant personnel. ☐ **AMC**

(c) An ACDSP must utilise a personnel fatigue management strategy. ☐ **AMC**

(d) MAOs or Sponsors must utilise on board emergency procedures when carrying the ACD load types listed at ACD 60(a). ☐ **GM**

ACD.70 - ACD EQUIPMENT, SYSTEMS AND INSTALLATIONS (AUS)

(a) MAOs conducting ACD and ACDSPs must ensure that ACD Equipment, systems and installations meet, and are maintained to, authorised standards; and support the safe provision of services. ☐ **GM** ☐ **AMC**

ACD.80 - ACD COMPETENCY MANAGEMENT (AUS)

(a) The ACDSP must ensure personnel are competent and authorised to undertake their ACD duties. ☐ **GM** ☐ **AMC**

Superseded

DASR ANSP - Air Navigation Service Providers

ANSP.10 – Organisational Approval (AUS)

(a) Providers of the following Air Navigation Services (ANS) must operate only to the extent approved in the ANSP Certificate (ANSPC) issued by DASA: ☐ **AMC** ☐ **GM**

ANSP.20 – ANSP Certificate (AUS)

(a) An ANSP must use an ANSP Exposition (ANSPE) to apply to DASA for: ☐ **AMC** ☐ **GM**

1. issue of an ANSPC, or attached Service Provision Conditions (SPC)
2. variation to an ANSPC, or attached SPC

ANSP.30 – Organisational Structure (AUS)

(a) A certified ANSP must define its organisational structure to include: ☐ **AMC** ☐ **GM**

1. the authority, duties and responsibilities of all positions performing ANSP functions, including the management positions responsible for safety and quality management functions
2. the relationship and reporting lines between these positions and other parts of the organisation
3. formal relationships with external contributors to the service provision that may directly influence the safety of their services

ANSP.40 – Safety Management Systems (AUS)

(a) A certified ANSP must utilise a Safety Management System (SMS) in accordance with DASR.SMS. ☐ **GM**

ANSP.50 – Quality Management Systems (AUS)

(a) A certified ANSP must utilise a quality management system (QMS) to achieve consistency, continuity and compliance of safe service provision—through quality planning, quality assurance, quality control and quality improvement. ☐ **AMC** ☐ **GM**

ANSP.60 – Operations Orders, Instructions And Publications (OIP) (AUS)

(a) A certified ANSP must utilise authorised OIP that are easily accessible and contain the procedures, instructions and information required for personnel to perform their duties. ☐ **AMC** ☐ **GM**

(b) A certified ANSP providing Air Traffic Control (ATC) must utilise OIP that: ☐ **AMC** ☐ **GM**

Superseded

1. define ATS procedures and ATC separation standards

2. are harmonised with national civil practice and International Civil Aviation Organisation (ICAO) Standards and Recommended Practices so far as is reasonably practicable

3. detail the coordination of activities and services, including the exchange of relevant information, with:

   i. Aerodrome Operators

   ii. providers of Meteorological Services

   iii. AIS providers

   iv. CNS providers

   v. other ANSPs

4. detail contingency arrangements to deal with failures or irregularities in the systems used to provide ATC

5. define ANSP personnel fitness for duty requirements.

(c) A certified ANSP that provides CNS Services must utilise OIP that define how: ☐ **AMC** ☐ **GM**

1. the availability, continuity, accuracy and integrity of services are ensured

2. interruptions to provided services are communicated to affected organisations

3. changes to extant systems are managed.

(d) A certified ANSP that provides an AIS must: ☐ **AMC** ☐ **GM**

1. utilise OIP that define Aeronautical Information product development and delivery procedures

2. operate IAW the Letter of Acceptance (LOA) issued by DASA.

(e) A certified ANSP that provides FPD Services must utilise OIP that define how: ☐ **AMC** ☐ **GM**

1. Aeronautical Data for the design of flight procedures is either obtained from authoritative sources or verified and validated by the FPD Services provider

2. flight procedures are designed, including how design criteria are determined

3. the integrity of software systems used in the design of flight procedures is assured

4. changes to software systems used in the design of flight procedures are managed to ensure no detriment to Aviation Safety

5. flight procedures are published

6. periodic reviews of published procedures are conducted.

Superseded

ANSP.70 – Equipment, Systems and Installations (AUS)

(a) A certified ANSP must ensure that equipment, systems and installations used or intended for use in the provision of ANS: ☐ **AMC** ☐ **GM**

1. support the safe and effective provision of the service
2. are verified and tested to ensure they comply with relevant technical and operational requirements and present no detriment to Aviation Safety and operational capability ☐ **AMC** ☐ **GM**
3. are protected against physical and cyber threats from external and internal sources.

ANSP.80 – Personnel Competency and Licensing (AUS)

(a) A certified ANSP must ensure that personnel are qualified, competent, current and authorised to undertake their assigned duties. ☐ **AMC** ☐ **GM**

(b) A certified ANSP must only provide an Air Traffic Control Service utilising licensed Air Traffic Controllers. ☐ **AMC** ☐ **GM**

(c) A certified ANSP that provides FPD Services must ensure all personnel who design instrument flight procedures are qualified, competent and current in instrument procedure design. ☐ **AMC**

ANSP.90 – Services Provided By Non-Certified Providers (AUS)

(a) A certified ANSP which uses data provided by a Data Services Provider (DSP) or another ANSP must ensure contractual arrangements regarding the supply of data in any form or for use by any operational system include requirements on the DSP to: ☐ **GM**

1. provide services only within the scope of a Service Level Agreement or documents issued by the relevant CAA or MAA
2. comply with the service delivery provisions of the current version of RTCA 'Standards for Processing Aeronautical Data'
3. advise the ANSP where the DSP has subsequently identified deficiencies or errors in released aeronautical databases
4. advise the ANSP where any CAA or MAA has changed the conditions of approval of the DSP as a source of Aeronautical Data.

(b) A certified ANSP that uses data provided by a DSP must advise all MAOs when released aeronautical databases, or updates to any existing aeronautical databases, are identified to have deficiencies or errors. ☐ **GM**

Superseded

DASR AVFM - Aviation Fatigue Management

AVFM.10 - SCOPE

(a) This regulation applies to organisations operating with approvals granted under DASR.ARO.100 or DASR.ANSP, or DASR ABM.

(b) Where organisations are subject to AVFM.10.A, the regulation must apply to: ☐ **GM**

1. personnel who meet the definition of DASR Glossary – Aircrew
2. personnel who provide an Air Traffic Control (ATC) service as defined in DASR Glossary – Air Traffic Control
3. personnel who provide an Air Battle Management (ABM) operation as defined in DASR Glossary – Air Battle Management
4. personnel who meet the definition of DASR Glossary – Crew and operate UAS IAW DASR.UAS 20.A Certified Category UAS or DASR.UAS.30.A(1) Specific Type A Category UAS where the Authority has identified a need to comply with DASR.AVFM.

AVFM.20 - AVIATION FATIGUE MANAGEMENT

(a) The Accountable Manager (AM) must utilise defined management controls that eliminate or otherwise minimise organisational aviation fatigue risks SFARP IAW DASR.SMS. ☐ **GM**

(b) The AM's management of aviation fatigue must:

1. define duty limitations in accordance with AVFM.30
2. be integrated with the organisation's DASR.SMS solution ☐ **GM** ☐ **AMC**
3. be contextualised to the scope of organisational activities performed and aviation systems operated by employment groups identified in AVFM.10.B ☐ **GM**
4. be defined using benchmark information acceptable to the Authority ☐ **GM** ☐ **AMC**
5. be integrated with the organisation's DASR.ARO.100 or DASR.ANSP.50 quality management solutions, as applicable ☐ **GM**
6. record aviation fatigue management training competency and currency. ☐ **AMC**

AVFM.30 - DUTY LIMITATIONS

(a) The AM must use fatigue-related principles, operational knowledge and experience to: ☐ **GM**

1. define normal and extended duty time limitations ☐ **GM1** ☐ **GM2**

(b) The AM must establish methods to:

Superseded

1. define how:

   a) fatigue hazard identification and controls will be applied prior to task commencement

   b) to re-assess the task environment on the day

   c) to assess the suitability of normal and extended duty limitations to provide aviation fatigue risk control SFARP. ☐ **GM**

2. provide aviation fatigue risk control SFARP that define how fatigue hazard identification and controls will be applied:

   a) after task commencement

   b) when circumstances arise that could place staff beyond defined duty time limitations before task completion. ☐ **GM**

3. periodically validate duty limitations against the requirements of DASR.AVFM. ☐ **GM** ☐ **AMC**

Superseded

MED.05 – AVIATION MEDICINE (AVMED) TRAINING (AUS)

☐ **GM**

(a) The MAO or Sponsor (Sponsor only applicable under DASR NDR.05 or DASR NDR.10) must ensure Aircrew complete initial AVMED training IAW the learning requirements approved by Commanding Officer (CO) Institute of Aviation Medicine (IAM), prior to conducting flight operations in a military Configuration, Role and Environment (CRE). ☐ **GM** ☐ **AMC**

(b) By way of exception from DASR MED.05(a), Aircrew who have completed initial AVMED training conducted by Air Force Interoperability Council (AFIC) member nations are exempt from the requirement to complete initial AVMED training. ☐ **GM**

(c) The MAO, ANSP, ABMO, HAPO personnel or Sponsor must ensure all AVMED related training results are recorded for all relevant personnel. ☐ **AMC**

(d) Where an MAO, ANSP, ABMO or Sponsor identifies a requirement for additional AVMED-related training to that provided by IAM, this training is to be co-ordinated and approved under the authority of CO IAM. ☐ **GM**

(e) The MAO or Sponsor must ensure Aircrew maintain AVMED Currency, as follows: ☐ **GM**

1. overall AVMED Currency is dependent on maintaining both AVMED Currency and Supplemental Aviation Medicine (SAVMED) Currency

2. SAVMED training Currency is initially set through completion of initial AVMED training, and reset through either AVMED refresher training, or SAVMED training ☐ **AMC1** ☐ **AMC2**

3. five years is the maximum Currency period for AVMED training ☐ **GM**

4. by way of exception from DASR MED.05(e)3, in consultation with CO IAM, and risk managed IAW DASR.SMS, the MAO or Sponsor may grant a currency extension ☐ **GM**

5. three years is the maximum Currency period for SAVMED training.

(f) By way of exception from DASR MED.05(e), Aircrew that hold AVMED training Currency conducted by AFIC member nations are exempt from the requirement to complete AVMED training, while that Currency remains in effect.

(g) The MAO or Sponsor must obtain endorsement from CO IAM prior to the conduct of Squadron Aviation Medicine Liaison Officer (SAMLO)-provided SAVMED training ☐ **GM**

(h) Aircrew appointed as a unit SAMLO must meet:

1. initial and ongoing training requirements (defined by CO IAM) before exercising the privilege of conducting SAVMED training

2. additional initial and ongoing training requirements (defined by CO IAM) before exercising the privilege of assisting in the conduct of Physiological Episode Recognition and Recovery Training (PERRT) by IAM.

Superseded

(i) The MAO or Sponsor must ensure that persons who authorise or operate Uncrewed Aircraft Systems (UAS) in the following categories of UAS, meet the AVMED training and Currency requirements defined by CO IAM: ☐ **GM**

1. DASR UAS.20(a) Certified Category UAS
2. DASR UAS.30(a)1 Specific Type A Category UAS, where the Authority has stipulated a requirement to comply with DASR MED.05 in the relevant UAS Operating Permit (UASOP).

(j) Aircraft Controllers within an Air Navigation Service Provider (ANSP) or ABMO must meet the AVMED training and Currency requirements defined by CO IAM. ☐ **GM**

(k) Personnel conducting High Altitude Parachute Operations (HAPO) must meet the AVMED training and Currency requirements defined by CO IAM. ☐ **GM**

(l) CO IAM must define UAS Crew, HAPO personnel and Aircraft Controller AVMED training and Currency requirements:

1. on the basis of CRE
2. consistent with AFIC Standards.

(m) DASR.MED.05 does not apply to Aircraft Passengers with the exception of HAPO personnel. ☐ **GM**

MED.10 - AVIATION MEDICAL CERTIFICATE

(a) The Accountable Manager must ensure aircrew, aircraft controllers and remote pilots have a current aviation medical certificate that is: ☐ **GM** ☐ **AMC**

1. For pilot aircrew: valid for a period not greater than 12 months.
2. For non-pilot aircrew: valid for a period not greater than 24 months.
3. For aircraft controllers and remote pilots: valid for a period not greater than 24 months.[5]

MED.15 - MEDICAL FITNESS MANAGEMENT

(a) The Accountable Manager must establish a medical fitness management system that ensures aircrew, aircraft controllers and remote pilots maintain medical fitness standards for flying related duties. ☐ **GM** ☐ **AMC**

Superseded

NTS.10 – Defence NTS construct (AUS)

☐ **GM**

(a) MAOs, ANSPs and ABMOs must utilise defined controls to eliminate NTS-related safety risks SFARP and, if it is not reasonably practicable to do so, to minimise those risks SFARP. ☐ **GM**

(b) MAOs, ANSPs and ABMOs management of NTS safety risks must:

1. include within its scope:
   - i. Aircrew
   - ii. Crew who operate UAS IAW DASR UAS.20(a) Certified Category UAS or DASR UAS.30(b) Specific Type A Category UAS, and where DASA has identified a need to comply with DASR NTS through the OpSpec or UASOP
   - iii. Aircraft Controllers.
2. be defined using benchmark information acceptable to DASA ☐ **GM**
3. be integrated into the organisation's:
   - i. Flying Management System (FMS) (or equivalent) ☐ **GM**
   - ii. Safety Management System (SMS) ☐ **GM**
   - iii. Quality Management System (QMS). ☐ **GM**
4. include the following NTS training: ☐ **GM**
   - i. initial knowledge-based training conducted prior to either: ☐ **GM** ☐ **AMC**
     - a. conducting Flight Operations
     - b. controlling Defence Aviation operations under an ANSP
     - c. managing Defence Aviation operations under an ABMO.
   - ii. by exception from DASR NTS.10(b)4(i), and risk managed IAW DASR SMS, the regulated entity may exempt personnel from the requirement to complete knowledge-based NTS training prior to conducting flight operations, or controlling or managing Defence Aviation operations ☐ **GM**
   - iii. bridging training conducted:
     - a. during Aircrew or Crew conversion training, or Aircraft Controller endorsement training or equivalent ☐ **GM** ☐ **AMC**
     - b. periodically. ☐ **GM** ☐ **AMC**
   - iv. skills-based training and assessment integrated into the organisation's FMS (or equivalent) ☐ **GM** ☐ **AMC**
   - v. continuation knowledge-based training conducted no less frequently than every two years ☐ **GM** ☐ **AMC**

Superseded

vi. by exception from DASR NTS.10(b)4(v) and risk managed IAW DASR SMS, MAOs, ANSPs and ABMOs may grant a maximum extension of up to one year ☐ **GM**

(c) MAOs, ANSPs and ABMOs must:

1. utilise defined: ☐ **GM** ☐ **AMC**

   i. selection criteria for NTS Facilitators (NTSF) and NTS Trainers (NTST)

   ii. Learning Management Plans (LMP) to train NTST

   iii. qualification processes for NTSF and NTST.

2. record NTS training in an enduring format.

Superseded

DASR SMS - Aviation Safety Management Systems

SMS.A.10 - Scope (AUS)

a. This section specifies Safety Management System (SMS) requirements that must be met by an organisation to qualify for the issue or continuation of an approval. This section only applies to organisations where the DASR SMS is listed as a requirement from the relevant section of the DASR.

SMS.A.25 - Safety Management System (AUS)

a. The approved organisation shall establish and maintain a Safety Management System (SMS). The SMS of the approved organisation shall: ☐ **AMC**

1. be established in accordance with the 4 components and 12 elements contained in paragraph (b);

2. be commensurate with the size of the organisation and the complexity of its aviation products and/or services; ☐ **GM** and

3. be maintained with a maturity level that is acceptable to the Authority. ☐ **GM**

b. The approved organisation's SMS shall comprise of, or map to, the following 4 components and 12 SMS elements:

1. SAFETY POLICY AND OBJECTIVES:

1.1 Management commitment ☐ **AMC** ☐ **GM**

1.2 Safety accountability and responsibilities ☐ **AMC** ☐ **GM**

1.3 Appointment of key safety personnel ☐ **AMC** ☐ **GM**

1.4 Coordination of emergency response planning ☐ **AMC** ☐ **GM**

1.5 SMS documentation ☐ **AMC** ☐ **GM**

2. SAFETY RISK MANAGEMENT:

2.1 Hazard identification ☐ **AMC** ☐ **GM**

2.2 Safety risk assessment and mitigation ☐ **AMC** ☐ **GM**

3. SAFETY OVERSIGHT and IMPROVEMENT: (see NOTE 1 below)

3.1 Safety performance monitoring and measurement ☐ **AMC** ☐ **GM**

3.2 The management of change ☐ **AMC** ☐ **GM**

3.3 Continuous improvement of the SMS ☐ **AMC** ☐ **GM**

4. SAFETY PROMOTION:

4.1 Training and education ☐ **AMC** ☐ **GM**

Superseded

4.2 Safety communication ☐ **AMC** ☐ **GM**

NOTES:

NOTE 1: The word ‘assurance’, as used by ICAO, has been replaced with ‘oversight and improvement’ so as to avoid confusion between oversight and improvement activities that are conducted by the organisation and the assurance activities of the Authority.

NOTE 2: The approved organisation may elect to extend one SMS across multiple organisations and organisation types. Where this is the case, approved organisations must ensure that a accountable manager and safety manager are positioned within their own organisation or an overarching organisation.

NOTE 3: The SMS framework required by this regulation is not designed to satisfy the requirements of safety management systems required by ‘major hazard facilities’. If the approved organisation believes that it may be a ‘major hazard facility’ as defined in the Work Health and Safety Regulations 2011, it should notify Safe Work Australia for further guidance on this matter.

Superseded

Volume 3 - DASP Guidance

1.1 Purpose

1.1.1 The purpose of Volume 3 of the Defence Aviation Safety Program (DASP) Manual is to:

1. promote understanding of the DASP and how its various elements work together to achieve the required Aviation Safety objective
2. support the Defence aviation community to effectively and efficiently comply with the applicable Aviation Safety requirements.

1.2 Scope

1.2.1 The material within Volume 3 is authoritative regulatory guidance. Volume 3 does not establish any requirements for the management of Aviation Safety but does discuss requirements set out in Volumes 1 and 2.

1.2.2 Volume 3 may serve as the primary source of requirements for some administrative actions and processes that enable the smooth functioning of the DASP; eg arrangements for the introduction to service of new Defence aircraft. Such requirements relate to the management of administrative risk only and are not related to the management of Aviation Safety risk.

1.3 How to Use This Document

1.3.1 Volume 3 sits within a range of regulatory supporting information published by the Defence Aviation Safety Authority (DASA), including:

1. Defence Aviation Safety Regulation (DASR) Acceptable Means of Compliance (AMC)
2. DASR Guidance Material (GM)
3. Advisory Circulars (ACs)
4. Factsheets.

1.3.2 Each type of supporting information serves a different purpose and it's likely that the reader will need to consult a variety of sources in order to gain a complete picture of any given topic. To that end, DASA will make best efforts to provide cross-references between related material. Readers are also encouraged to make use of the search functionality within the DASP Policy and Guidance Portal and, if in doubt, to contact DASA for assistance in identifying the material available on a given topic. More information about the hierarchy of Defence Aviation Safety policy and guidance can be found in Section 5.2 Aviation Safety Policy.

Superseded

Revision History

Date	Summary of change
10 Jun 25	Update to Content: **8. Continuing Airworthiness** 8.5.8 Military Aircraft Type Ratings
13 Apr 25	Release of New Content **9. Flight Operations** 9.5.1.5 Annex A
19 Mar 25	Update to Content: **4. The Defence Aviation Safety Authority** 4.1.4 Oversight and Enforcement **5. Regulation of Aviation Safety** 5.4.5 PSOE for Regulatory Oversight
27 Feb 25	Release of New Content: **7. Initial and Continuing Airworthiness** 7.4.3. Airworthiness Directives in the DASP **8. Continuing Airworthiness** 8.2.2. Operation of an Aircraft with a known Defect 8.2.5. Airworthiness Review Update to Content: **4. The Defence Aviation Safety Authority** 4.3. Delegates of the Safety Authority (DoSA) **5. Regulation of Aviation Safety** 5.2.5. Design Requirements

Superseded

	5.3. Annex A Military Air Operator 5.3. Annex R Approval of Repair Design 5.3. Annex U Uncrewed Aircraft System Operating Permit 5.3. Annex U Appendix 1 Summary of UASOP Form Suite **6. General Concepts** 6.1.1. Annex C Statement of Operating Intent and Usage (SOIU) 6.1.2. Annex C Airworthiness Issue Papers 6.7.2. Defence Aviation OIP 6.10.2. Periodic Review of Risk Assessment **7. Initial and Continuing Airworthiness** 7.1.2. DASR 21 - Aircraft Design, Production and Certification 7.2.2. Type Certification - Military Type Certificates (DASR 21 SubpartB) 7.2. Annex A - Tailoring a Type Certification Basis and Military Certification Review Items 7.4.2. Continued Airworthiness Occurrence Reporting **8. Continuing Airworthiness** 8.2.1. Continuing Airworthiness Management 8.2.4. Aircraft Maintenance Programme 8.2.6. Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) 8.3.2. Performance of Maintenance
30 Jan 25	Release of New Content: **9. Flight Operations** 9.5 Defence Navigation Approvals Update to Content: **4. The Defence Safety Authority** 4.3 Annex A FT DoSA QTE **8. Continuing Airworthiness** 8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) (moved from 8.2.2)

Superseded

20 Jan 25	Release of New Content: **9. Flight Operations** 9.1.5 MAO-AM Accountabilities and Responsibilities for Force Assigned Aircraft and Crew **8. Continuing Airworthiness** 8.4.6. MAML Suspension or Revocation
10 Oct 24	Update to Content: **8. Continuing Airworthiness** 8.3.5. Flexibility Provisions for Maintenance Organisations
25 Jul 24	Release of New Content: **6. General Concepts** 6.10. Aircraft Crash Protection
04 Jul 24	Release of New Content: **8. Continuing Airworthiness** 8.3.5. Flexibility Provisions for Maintenance Organisations
13 Jun 24	Release of New Content: **13. Independent Reviews of Aviation Safety** 13.1. Introduction 13.2. Airworthiness Board Format
28 Mar 24	Initial Release

Superseded

1. Introduction

1.1 Purpose

1.1.1 The purpose of Volume 3 of the Defence Aviation Safety Program (DASP) Manual is to:

1. promote understanding of the DASP and how its various elements work together to achieve the required Aviation Safety objective
2. support the Defence aviation community to effectively and efficiently comply with the applicable Aviation Safety requirements.

1.2 Scope

1.2.1 The material within Volume 3 is authoritative regulatory guidance. Volume 3 does not establish any requirements for the management of Aviation Safety but does discuss requirements set out in Volumes 1 and 2.

1.2.2 Volume 3 may serve as the primary source of requirements for some administrative actions and processes that enable the smooth functioning of the DASP; eg arrangements for the introduction to service of new Defence aircraft. Such requirements relate to the management of administrative risk only and are not related to the management of Aviation Safety risk.

1.3 How to Use This Document

1.3.1 Volume 3 sits within a range of regulatory supporting information published by the Defence Aviation Safety Authority (DASA), including:

1. Defence Aviation Safety Regulation (DASR) Acceptable Means of Compliance (AMC)
2. DASR Guidance Material (GM)
3. Advisory Circulars (ACs)
4. Factsheets.

1.3.2 Each type of supporting information serves a different purpose and it's likely that the reader will need to consult a variety of sources in order to gain a complete picture of any given topic. To that end, DASA will make best efforts to provide cross-references between related material. Readers are also encouraged to make use of the search functionality within the DASP Policy and Guidance Portal and, if in doubt, to contact DASA for assistance in identifying the material available on a given topic. More information about the hierarchy of Defence Aviation Safety policy and guidance can be found in Section 5.2 Aviation Safety Policy.

Superseded

1.1. Purpose

1.1 Purpose

1.1.1 The purpose of Volume 3 of the Defence Aviation Safety Program (DASP) Manual is to:

1. promote understanding of the DASP and how its various elements work together to achieve the required Aviation Safety objective
2. support the Defence aviation community to effectively and efficiently comply with the applicable Aviation Safety requirements.

1.2 Scope

1.2.1 The material within Volume 3 is authoritative regulatory guidance. Volume 3 does not establish any requirements for the management of Aviation Safety but does discuss requirements set out in Volumes 1 and 2.

1.2.2 Volume 3 may serve as the primary source of requirements for some administrative actions and processes that enable the smooth functioning of the DASP; eg arrangements for the introduction to service of new Defence aircraft. Such requirements relate to the management of administrative risk only and are not related to the management of Aviation Safety risk.

1.3 How to Use This Document

1.3.1 Volume 3 sits within a range of regulatory supporting information published by the Defence Aviation Safety Authority (DASA), including:

1. Defence Aviation Safety Regulation (DASR) Acceptable Means of Compliance (AMC)
2. DASR Guidance Material (GM)
3. Advisory Circulars (ACs)
4. Factsheets.

1.3.2 Each type of supporting information serves a different purpose and it's likely that the reader will need to consult a variety of sources in order to gain a complete picture of any given topic. To that end, DASA will make best efforts to provide cross-references between related material. Readers are also encouraged to make use of the search functionality within the DASP Policy and Guidance Portal and, if in doubt, to contact DASA for assistance in identifying the material available on a given topic. More information about the hierarchy of Defence Aviation Safety policy and guidance can be found in Section 5.2 Aviation Safety Policy.

Superseded

2. The Defence Aviation Safety Framework*

Superseded

3. The Defence Aviation Safety Program*

Superseded

4. The Defence Aviation Safety Authority

4.1 DASA's Assure Functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Regulatory Requirement

Superseded

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

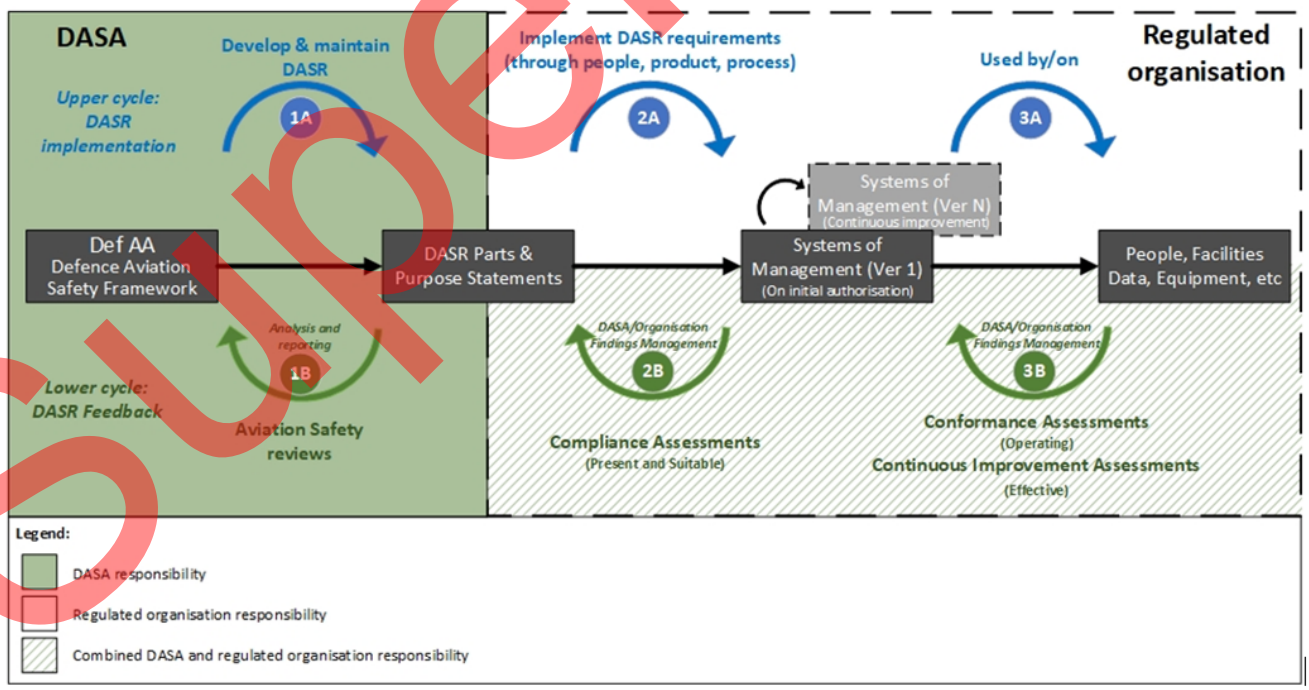


Figure 1: The Oversight and Enforcement operating model

4.1.4.10 **Operating model components.** The following model components apply:

Superseded

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

Superseded

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

Superseded

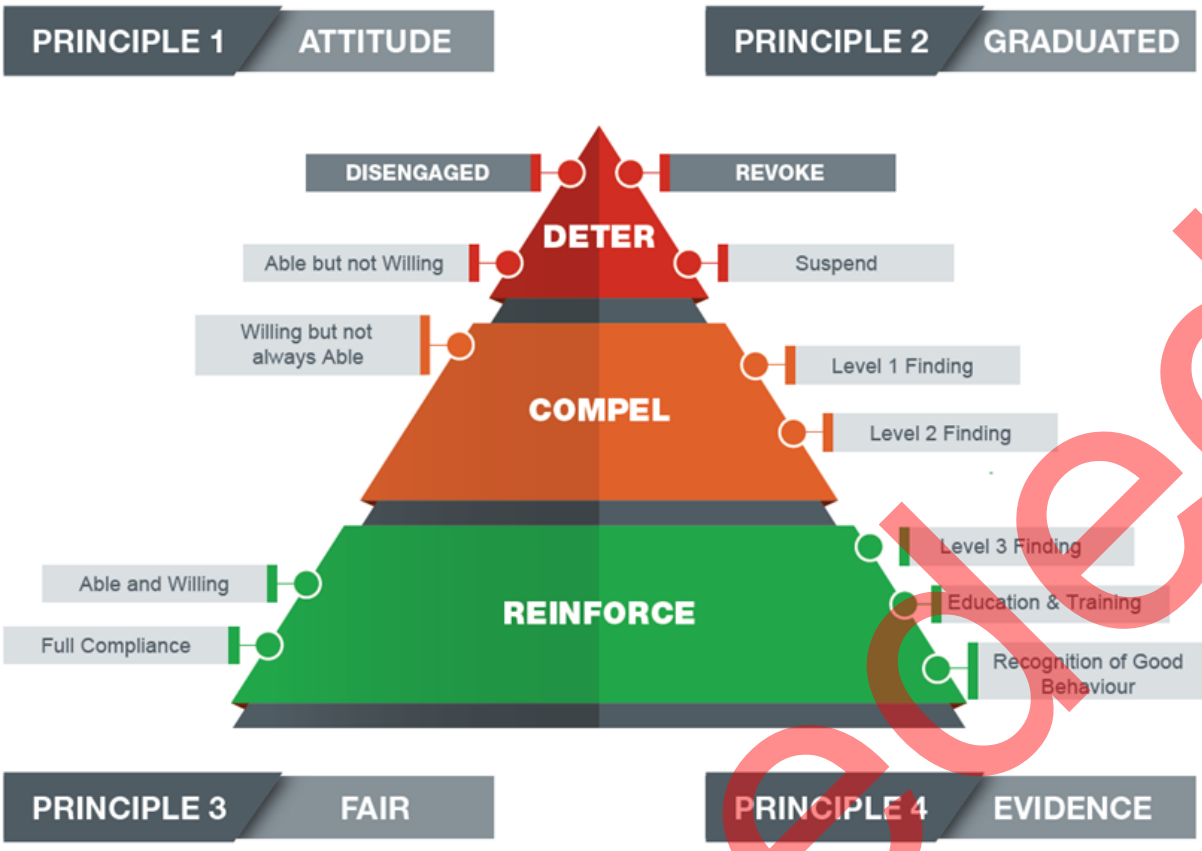


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

   i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

   ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

Superseded

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;
2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;
3. the nature and sufficiency of available objective evidence of the non-compliances;
4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;
5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;
6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

Superseded

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

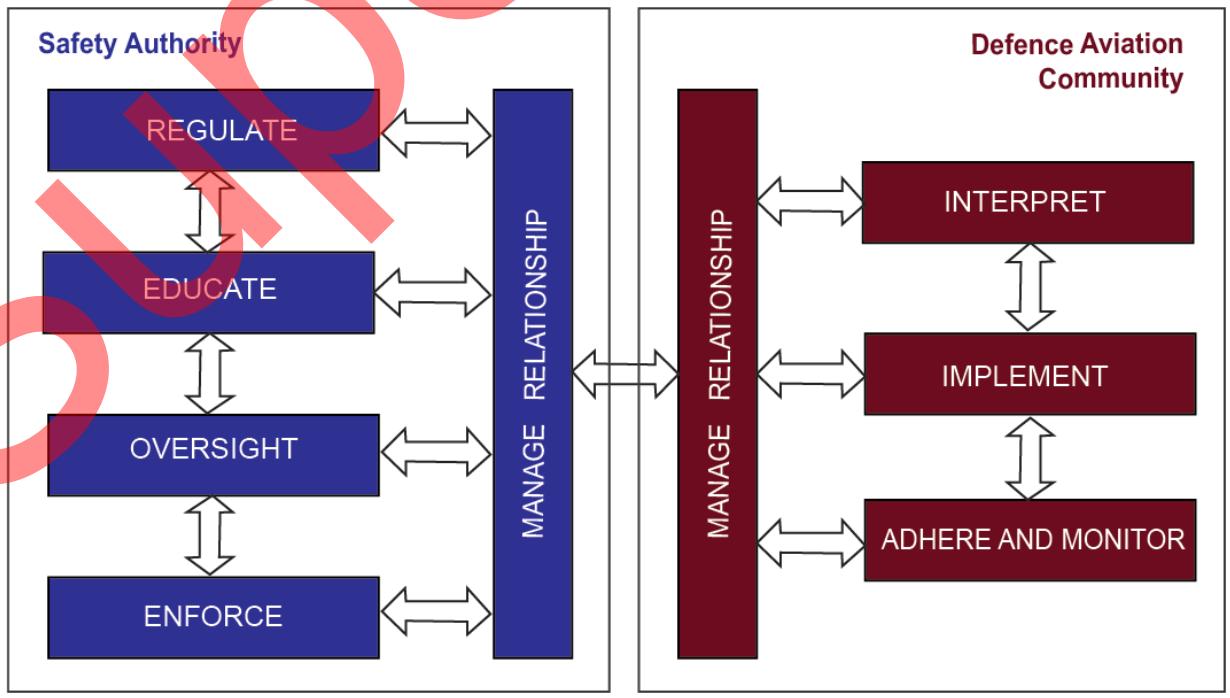
2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.



Superseded

Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs

Superseded

2. DASA Newsbreak

3. DASA workshops

4. international visits to, or by, other regulators/safety bureaus or equivalent organisations

5. conferences and symposiums

6. regulated community forums

7. Airworthiness Boards and convocations

8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

Superseded

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course
b. Helicopter Structural Engineering Familiarisation Course
c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The

Superseded

Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
   i. platform specific procedures
   ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory

Superseded

5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

4.3 Delegates of the Safety Authority (DoSA)

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA 'eyes and ears' in the field.

Superseded

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent

Superseded

CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

Superseded

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel

Superseded

investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

    i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

    ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

    iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

    iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

    v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also

Superseded

manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

i. DFSB safety investigations.

Superseded

ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are

Superseded

described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

   iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

   v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

   vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

   vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

   viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

Superseded

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

4.1. DASA's Assure functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity

Superseded

performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Regulatory Requirement

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

Superseded

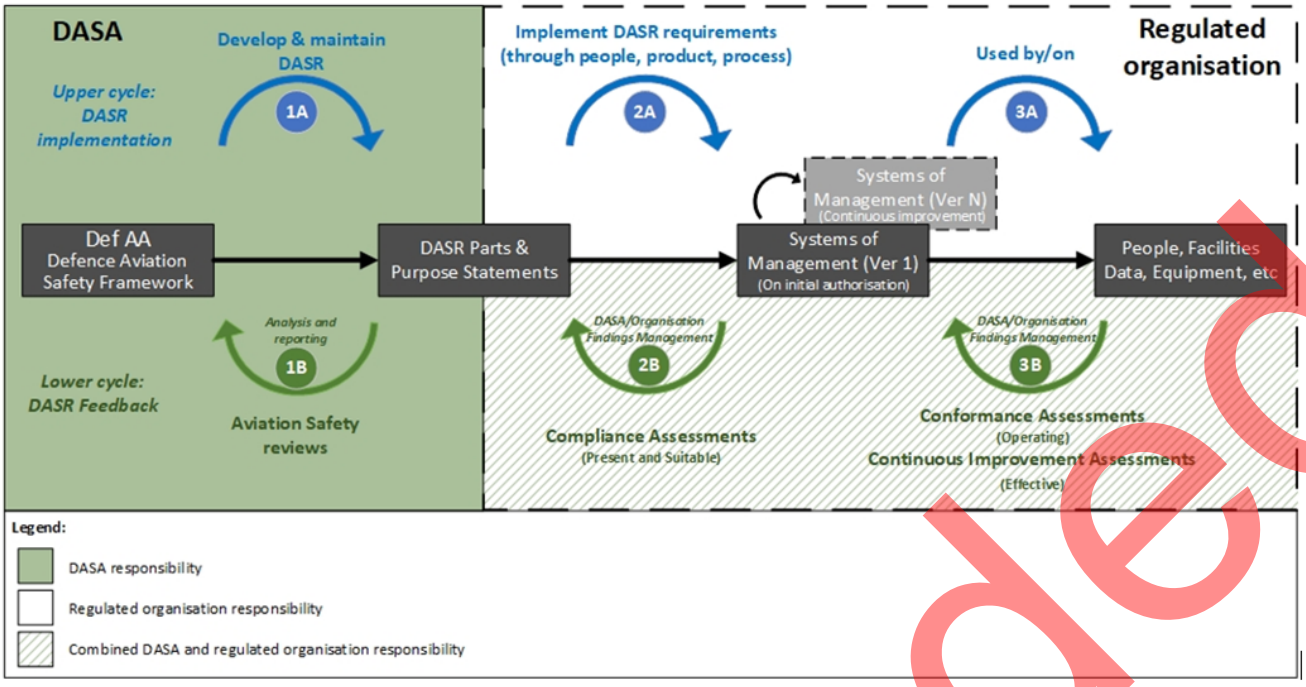


Figure 1: The Oversight and Enforcement operating model

4.1.4.10 **Operating model components.** The following model components apply:

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

Superseded

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

Superseded

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

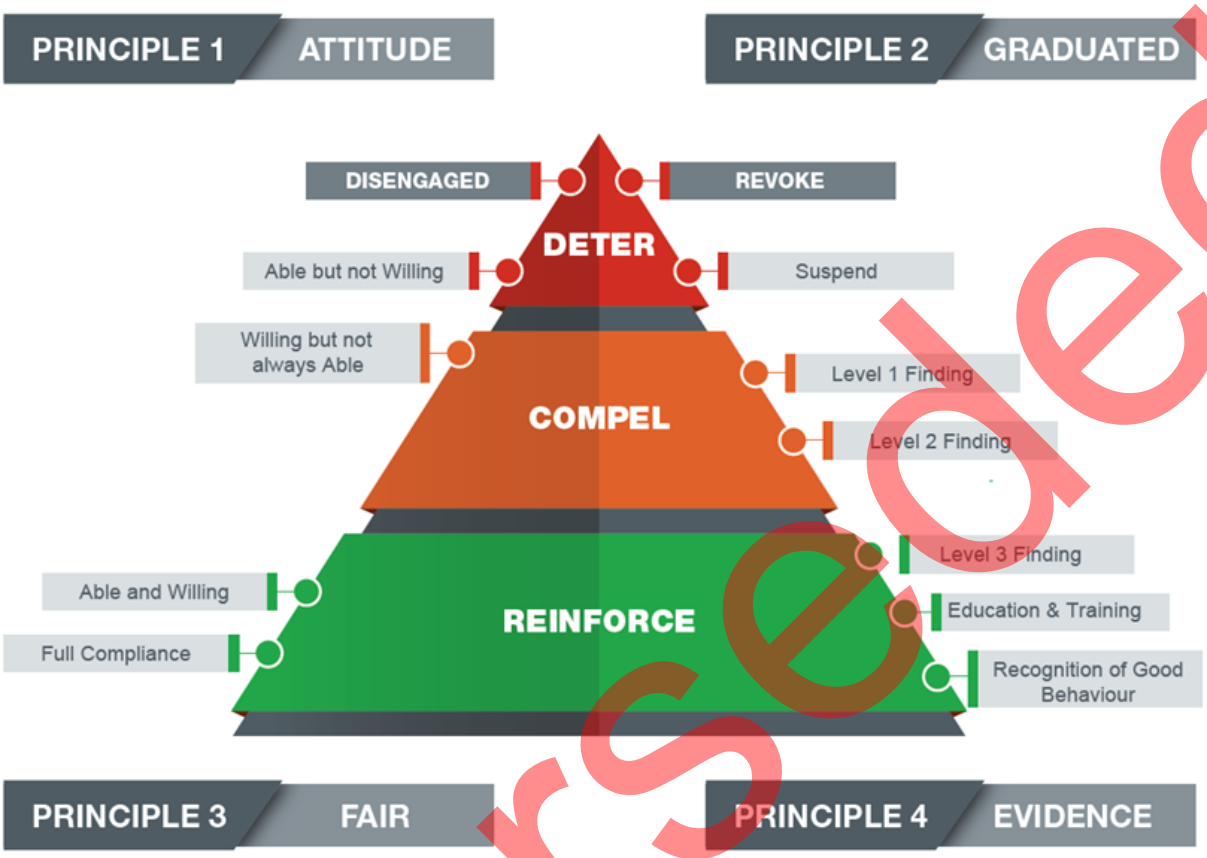


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

Superseded

i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;

2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;

3. the nature and sufficiency of available objective evidence of the non-compliances;

4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;

5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;

6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external

Superseded

agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.

Superseded

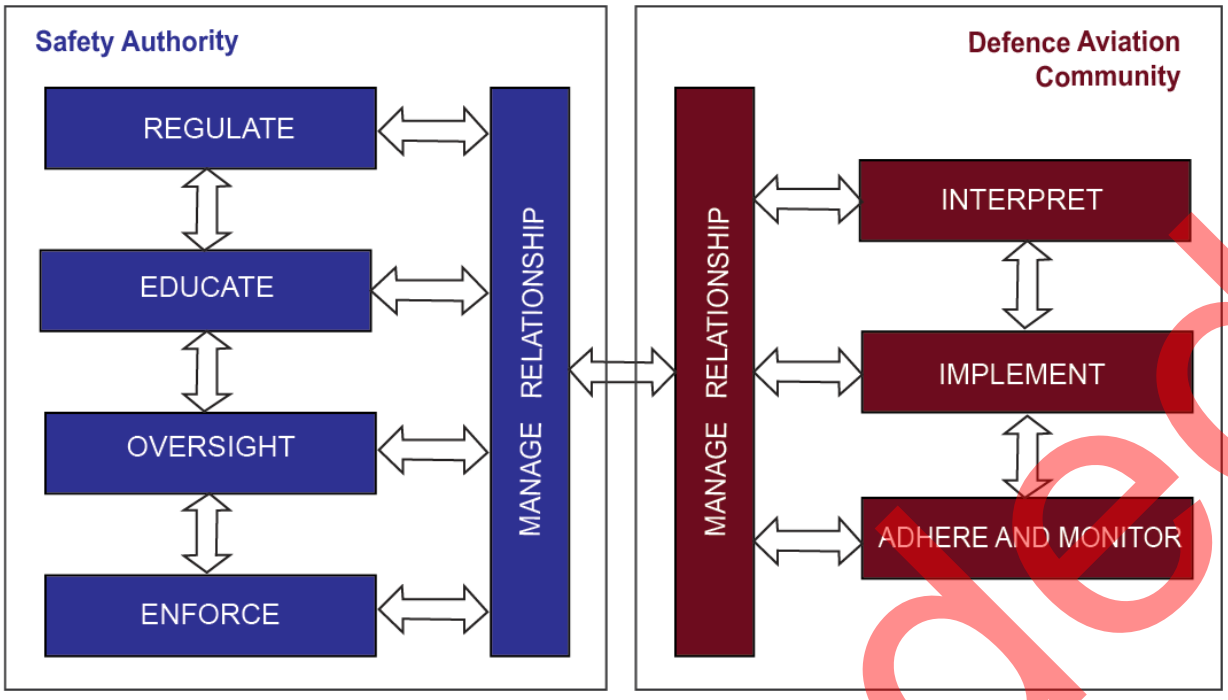


Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

Superseded

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs
2. DASA Newsbreak
3. DASA workshops
4. international visits to, or by, other regulators/safety bureaus or equivalent organisations
5. conferences and symposiums
6. regulated community forums
7. Airworthiness Boards and convocations
8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

Superseded

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

Superseded

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course

b. Helicopter Structural Engineering Familiarisation Course

c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

Superseded

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
    i. platform specific procedures
    ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory
5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

Superseded

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA 'eyes and ears' in the field.

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

Superseded

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

Superseded

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Superseded

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

   i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB

Superseded

maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial

Superseded

	PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

   i. DFSB safety investigations.

   ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

   iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

   i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

   ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked

Superseded

against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

   i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

   ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

   iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

   iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

Superseded

iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB

Superseded

identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

4.2. DASA's Ensure functions

4.1 DASA's Assure Functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity

Superseded

performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Regulatory Requirement

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

Superseded

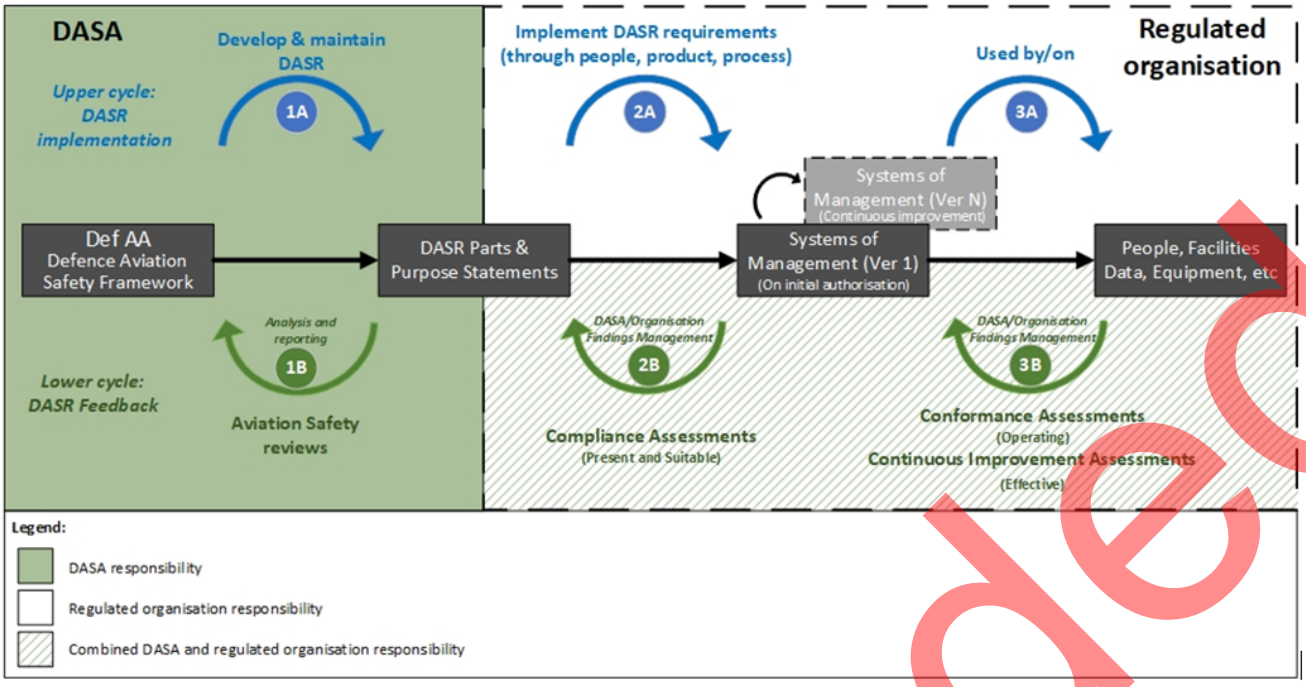


Figure 1: The Oversight and Enforcement operating model

4.1.4.10 **Operating model components.** The following model components apply:

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

Superseded

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

Superseded

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

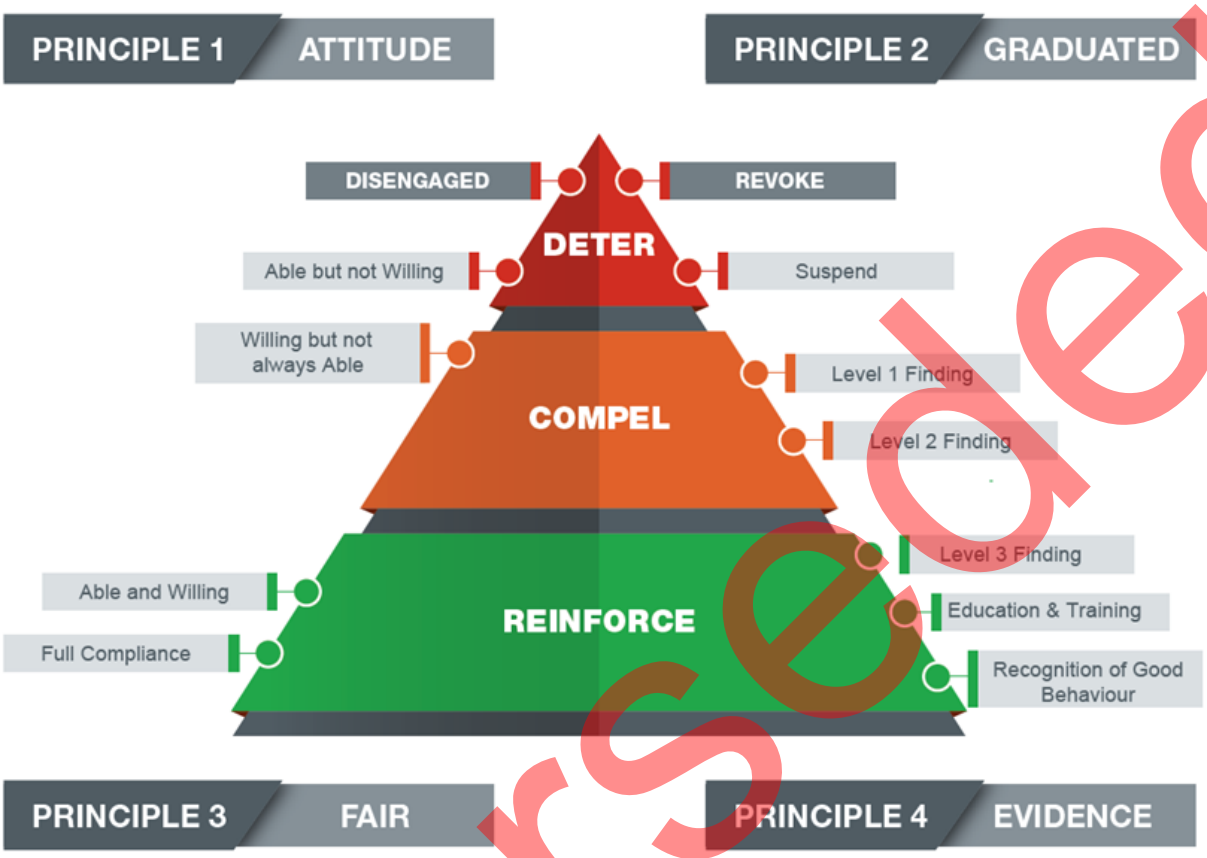


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

Superseded

i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;

2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;

3. the nature and sufficiency of available objective evidence of the non-compliances;

4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;

5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;

6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external

Superseded

agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.

Superseded

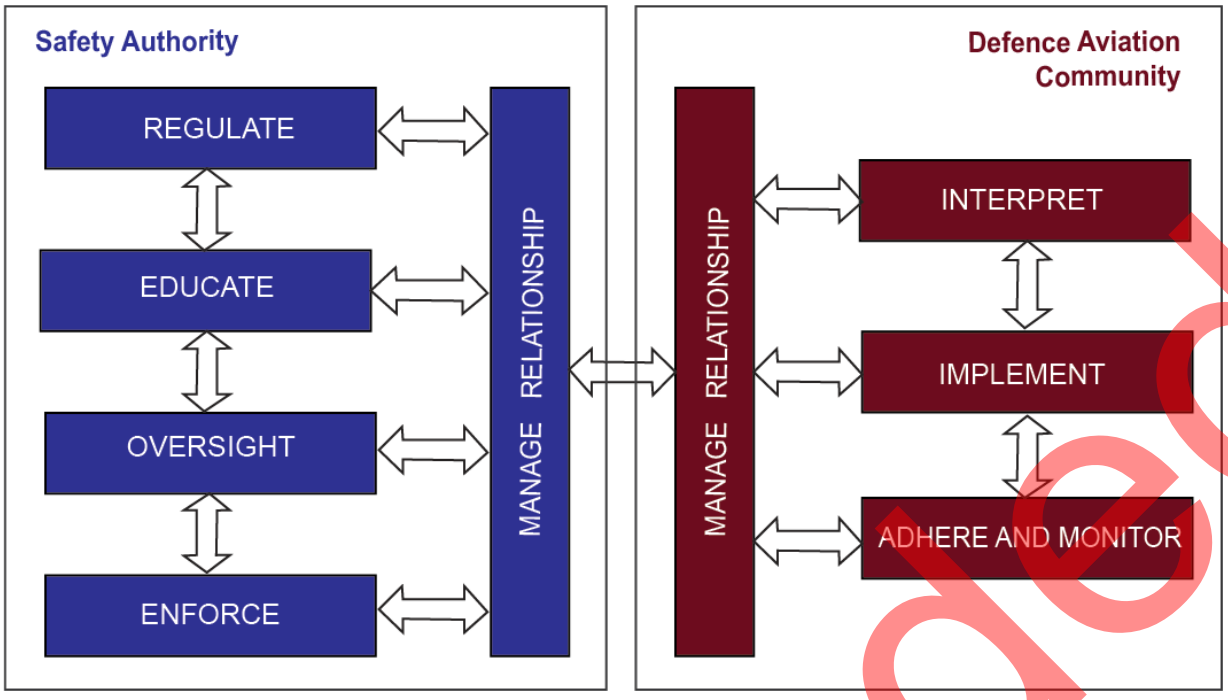


Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

Superseded

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs
2. DASA Newsbreak
3. DASA workshops
4. international visits to, or by, other regulators/safety bureaus or equivalent organisations
5. conferences and symposiums
6. regulated community forums
7. Airworthiness Boards and convocations
8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

Superseded

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

Superseded

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course

b. Helicopter Structural Engineering Familiarisation Course

c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

Superseded

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
    i. platform specific procedures
    ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory
5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

Superseded

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA 'eyes and ears' in the field.

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

Superseded

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

Superseded

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Superseded

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

   i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB

Superseded

maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial

Superseded

	PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

   i. DFSB safety investigations.

   ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

   iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

   i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

   ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked

Superseded

against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

   i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

   ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

   iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

   iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

Superseded

iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB

Superseded

identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

4.3. Delegates of the Safety Authority (DoSA)

4.1 DASA's Assure Functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity

Superseded

performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Regulatory Requirement

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

Superseded

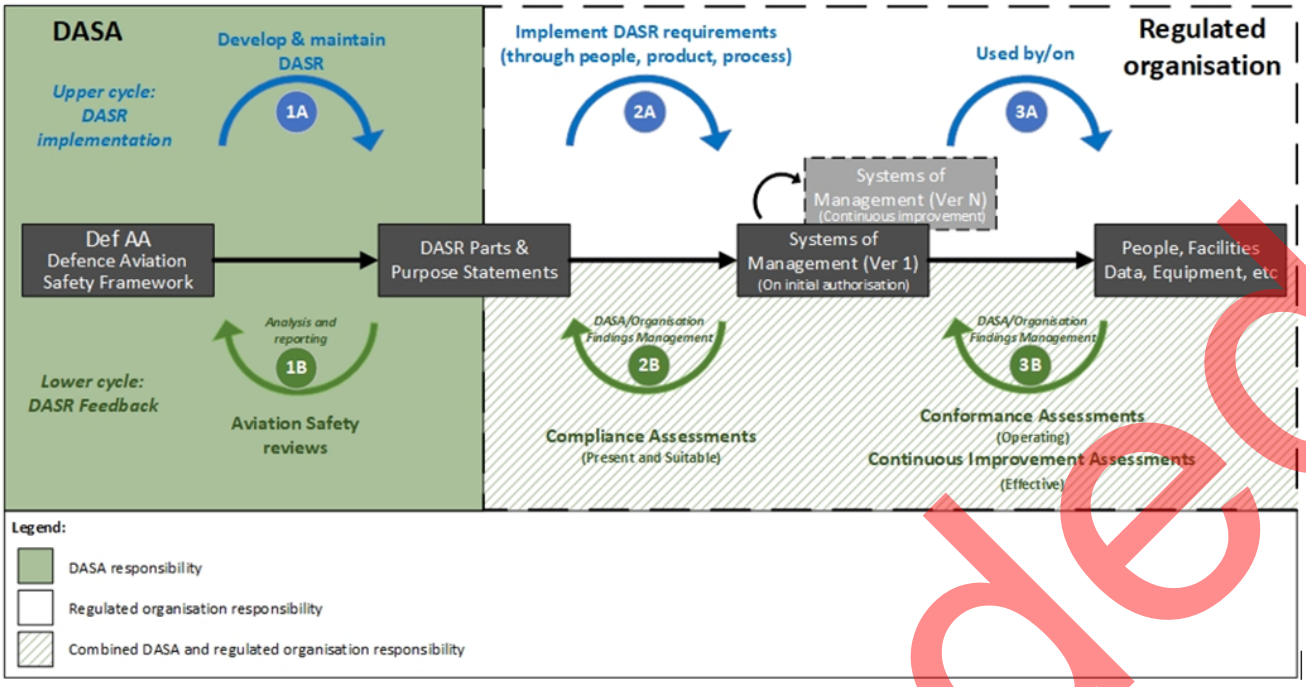


Figure 1: The Oversight and Enforcement operating model

4.1.4.10 **Operating model components.** The following model components apply:

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

Superseded

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

Superseded

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

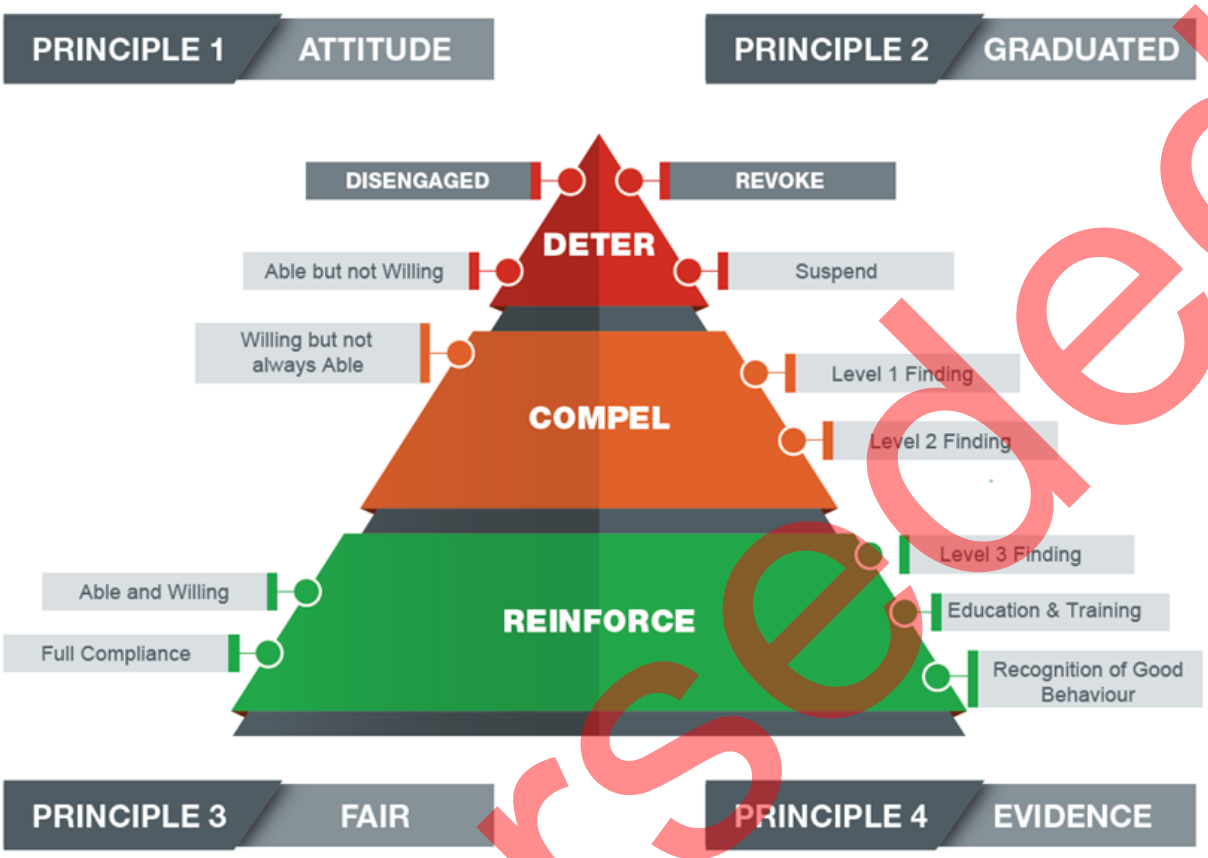


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

Superseded

i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;

2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;

3. the nature and sufficiency of available objective evidence of the non-compliances;

4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;

5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;

6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external

Superseded

agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.

Superseded

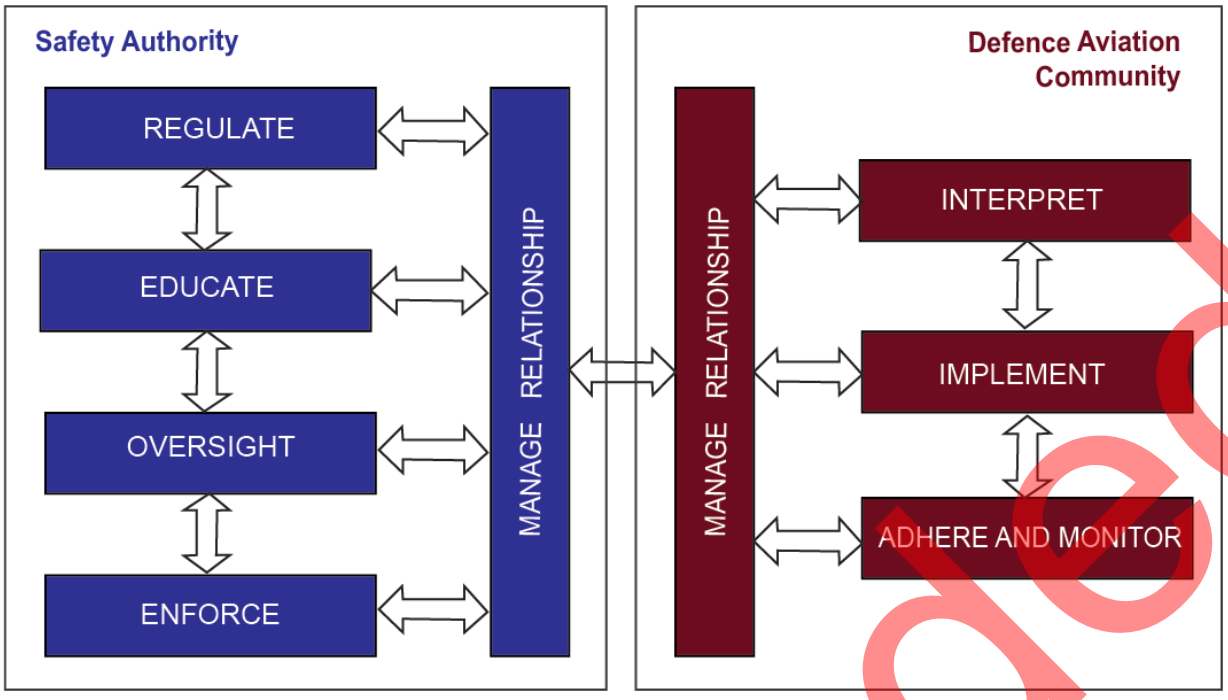


Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

Superseded

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs
2. DASA Newsbreak
3. DASA workshops
4. international visits to, or by, other regulators/safety bureaus or equivalent organisations
5. conferences and symposiums
6. regulated community forums
7. Airworthiness Boards and convocations
8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

Superseded

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

Superseded

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course

b. Helicopter Structural Engineering Familiarisation Course

c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

Superseded

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
    i. platform specific procedures
    ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory
5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

Superseded

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA 'eyes and ears' in the field.

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

Superseded

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

Superseded

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Superseded

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

   i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB

Superseded

maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial

Superseded

	PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

   i. DFSB safety investigations.

   ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

   iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

   i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

   ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked

Superseded

against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

   i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

   ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

   iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

   iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

Superseded

iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB

Superseded

identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

Annexes

4.1 DASA's Assure Functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Superseded

Regulatory Requirement

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

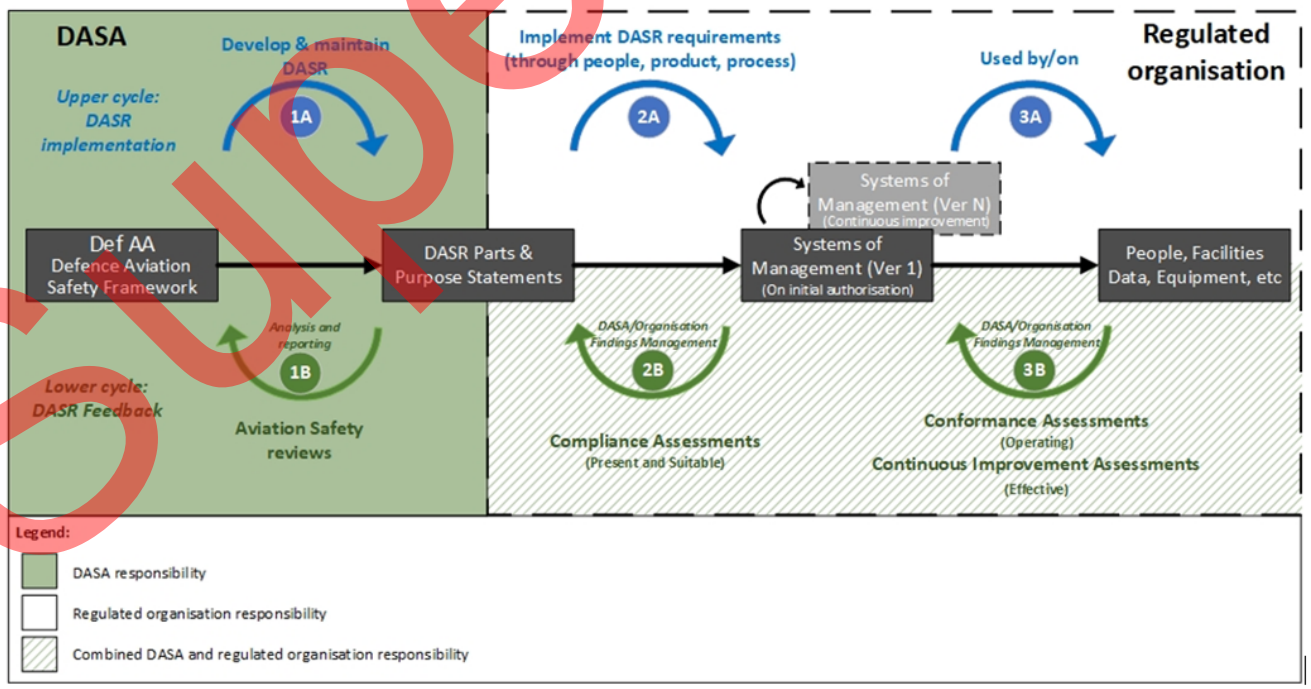


Figure 1: The Oversight and Enforcement operating model

Superseded

4.1.4.10 **Operating model components.** The following model components apply:

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make

Superseded

them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

Superseded

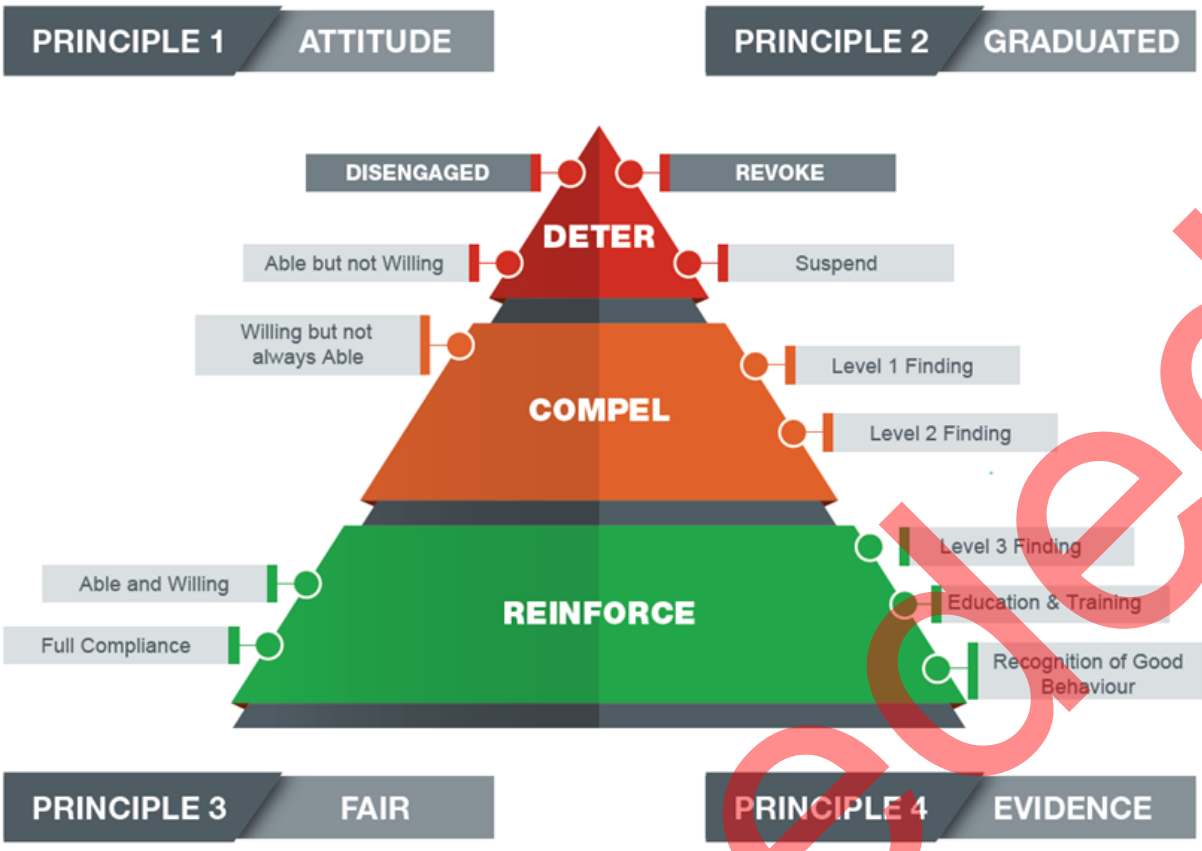


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

   i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

   ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

Superseded

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;

2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;

3. the nature and sufficiency of available objective evidence of the non-compliances;

4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;

5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;

6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

Superseded

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

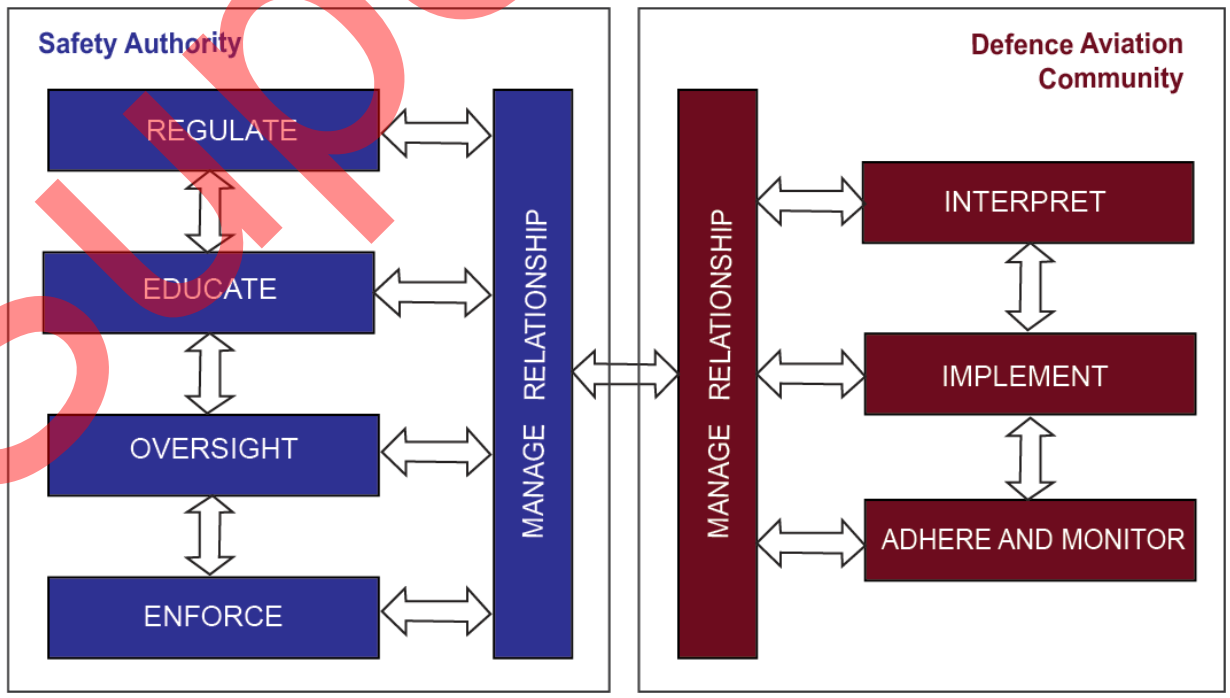
2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.



Superseded

Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs

Superseded

2. DASA Newsbreak

3. DASA workshops

4. international visits to, or by, other regulators/safety bureaus or equivalent organisations

5. conferences and symposiums

6. regulated community forums

7. Airworthiness Boards and convocations

8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

Superseded

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course
b. Helicopter Structural Engineering Familiarisation Course
c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The

Superseded

Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
   i. platform specific procedures
   ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory

Superseded

5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

4.3 Delegates of the Safety Authority (DoSA)

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA ‘eyes and ears’ in the field.

Superseded

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent

Superseded

CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

Superseded

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel

Superseded

investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

    i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

    ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

    iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

    iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

    v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also

Superseded

manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

i. DFSB safety investigations.

Superseded

ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are

Superseded

described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

   iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

   v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

   vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

   vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

   viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

Superseded

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

Annex A - DoSA Qualifications, Training and Experience (QTE)

1. For platform related DoSA functions, having the following QTE will be considered as either required or highly desirable depending on the delegation scope.

    a. Bachelor or higher degree qualification in Aerospace, Aeronautical, Mechanical, Mechatronics, Electronics, Electrical and/or Software Engineering. (Qualifications should be Australian accredited or assessed to be equivalent to Australian qualification by Engineers Australia, the Australian Computer Society, or the Australian Institute of Project Management).

    b. Chartered Professional Engineer (CPEng) in the Institute of Engineers Australia (IEAust) or equivalent.

    c. Ten years of aviation experience. At least two out of the 10 years should be experience as staff of DASA, or an organisation holding a Design Organisation Approval under EASA, CASA, EMAR or DASR 21 Section A Subpart J—Military Design Organisation Approval.

    d. Undertaken DASR 21, M and 145 practitioner courses (or equivalent courses) and DASA Type Certification Course.

2. For a DoSA nominating for a Flight Test function, the following QTE is mandatory:

    a. Bachelor or higher degree qualification within the Science or Engineering field.

    b. Graduate of an Experimental Flight Test course (long course). A ‘long course’ requires a graduate from a minimum 10 month course by any of the following established Test Pilot schools:

        (1) Empire Test Pilot School.

        (2) U.S. Navy Test Pilot School.

        (3) U.S. Air Force Test Pilot School.

        (4) French Test Pilot School (EPNER).

        (5) National Test Pilot School.

        (6) International Test Pilot School (ITPS).

        (7) Indian Air Force Test Pilot School.

    c. Attained B-category Flight Test Aircrew or higher.

    d. Ten years of aviation experience, with at least five years of experience in categorised Flight Test.

3. For a DoSA nominating for a Flight Test function, the following additional QTE is desirable:

    a. Full member of the Society of Experimental Test Pilots or the Society of Flight Test Engineers.

    b. At least three years of experience in Capability Development.

    c. DASR 21 and Type Certification Practitioner Courses.

Superseded

4. For a DoSA nominating for an ATC Licencing function the following QTE is required:

   a. Hold or have held an ADF ATC Licence.

   b. At least 10 years' experience as a licenced air traffic controller (desirable).

Superseded

Annex B - Specific Functional DoSA Information and Reading

1. **Occurrence Report Assessment** (DASR 21, DASR M & DASR 145)

   - DASR
     - GR.40 – Occurrence Reporting
     - DASR 21 – Subpart A – General Provisions
     - DASR M – Subpart B – Accountability
     - DASR 145.A.60 Occurrence Reporting
   - DASA(I) IINV 03-001 – Assessment of Unsafe Conditions: U8629413
   - General awareness of ICAO requirements relating to reporting of faults, malfunctions and defects : reporting of faults, malfunctions and defects ICAO Doc 9760 – Airworthiness Manual
     - Part 3, Chapter 9.1-9.9
     - Part 5, Chapter 6.1-6.4

2. **Airworthiness Directives** (DASR 21 Subpart A)

   - DASR
     - DASR 21 – Subpart A – General Provisions
   - DASA(I) SAPROD 01-001 Management of Airworthiness Directives: U8620708
   - General awareness of ICAO requirements relating to Mandatory Continuing Airworthiness Information: ICAO Doc 9760 – Airworthiness Manual
     - Part 2, Chapter 1.4
     - Part 3, Chapter 9.1-9.9
     - Part 5, Chapter 6.5-6.9

3. **Flight Conditions and Military Permit to Fly (MPTF)** (DASR 21 Subpart P)

   - DASR
     - DASR 21 – Subpart P – Military Permit to Fly
   - AC 003/2017 DASR Implementation of Military Permit to Fly
   - DASA(I) SAPROD 01-008 Approve Flight Conditions and Issue Military Permit to Fly: U9376648
   - General awareness of ICAO requirements relating to the approval of special flights: ICAO Doc 9760 – Airworthiness Manual
     - Part 3, Chapter 5

4. **Flight Test (DASR Flight Test)**

Superseded

- In addition to “Flight Conditions and Military Permit to Fly (MPTF) (DASR 21 Subpart P)”:
- DASR
  - DASR FT – Flight Tests

5. Military Certificates of Airworthiness (MCoA) and Military Restricted Certificates of Airworthiness (MRCoA) (DASR Subpart H)

- DASR
  - DASR 21 – Subpart H – Military Certificates of Airworthiness
- DASA(I) SAPROD 01-002 Issue Military Certificate of Airworthiness: U8880433
- General awareness of ICAO requirements relating to registration and the issue of Certificate of Airworthiness: ICAO Doc 9760 – Airworthiness Manual
  - Part 3, Chapter 2
  - Part 3, Chapter 4

6. **Airworthiness Standards (DASR 21.A.16B)**

- DASR
  - DASR 21 – Subpart B – Military Type Certificate and Military Restricted Type Certificate
- General awareness of ICAO requirements relating to Type Certification: ICAO Doc 9760 – Airworthiness Manual
  - Part 2, Chapter 2.1-2.9
  - Part 3, Chapter 4.3
  - Part 3, Chapter 8.7

7. **Inspection of Compliance Demonstration Evidence (DASR 21.A.33) and Project**

- General awareness of ICAO requirements relating to Type Certification and authority involvement: ICAO Doc 9760 – Airworthiness Manual
  - Part 2, Chapter 2.1-2.

(h) **ATC Licencing (DASR ANSP.80)**

- DASR
  - DASR ANSP
- General awareness of ICAO requirements relating to ATC Licencing: Annex 1
  - Manual of Procedures for Establishment and Management of a State’s Personnel Licensing System (Doc 9379)
  - Manual on the Approval of Training Organizations (Doc 9841)

Superseded

- Procedures for Air Navigation Services — Training (Doc 9868,PANS-TRG).
- Human Factors Training Manual (Doc 9683).
- Manual on Air Traffic Control
- On-the-Job Training Instructor Competency-based Training and Assessment (Doc 10056, Volumes I and II)

- General awareness of CASA requirements relating to ATC Licencing:
  - CASR Part 65 – ATC Licencing
  - AC 065 – ATC Licencing

Superseded

4.1 DASA's Assure Functions

4.1.1 Introduction

4.1.1.1 The following sections describe how DASA carries out the independent safety assurance functions identified in Chapter 3 of Volume 1. These functions are described in simple terms as:

1. **Policy prescription and interpretation.** DASA prescribes and interprets policy for the management of Defence Aviation safety, inclusive of the Defence Aviation Safety Regulation (DASR) and related standards.
2. **Certification.** Issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR.
3. **Oversight and enforcement.** Conduct ongoing oversight and enforcement activities to assure compliance with the DASR and the continued validity of authorisations issued by DASA
4. **Safety promotion.** Promote Aviation Safety through education, training, and dissemination of safety information.

4.1.2 Policy Prescription and Interpretation

4.1.2.1 DASA is accountable to the Defence Aviation Authority to prescribe and interpret Aviation Safety management policy . This is fulfilled primarily through:

1. the promulgation and management of the Defence Aviation Safety Regulation and supporting standards
2. the provision of authoritative advice and guidance in relation to compliance with those regulations and standards.

4.1.2.2 DASA is required to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR' . In fulfilment of this responsibility, DASA prescribes and interprets the minimum safety requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

4.1.2.3 In prescribing design requirements for aircraft and aircraft-related systems, DASA recognises Airworthiness Codes issued by certain CAAs and MAAs and supplements these with additional requirements identified through ADF operational experience and/or CRE considerations. DASA periodically reviews prescribed requirements and assesses their continued applicability and suitability. Finally, DASA provides advice on the appropriateness of tailoring the prescribed requirements and the impact of non-compliance.

Superseded

4.1.3 Certification

4.1.3.1 DASA is accountable to the Defence Aviation Authority to 'issue authorisations, including permits, approvals and licences, to certify that Defence Aviation platforms, systems, organisations and personnel have shown compliance with applicable DASR' . This activity is known as 'certification'. The various authorisations DASA issues are described in chapter 5.3.

4.1.4. Oversight and Enforcement

Introduction

4.1.4.1 The effectiveness of the Defence Aviation Safety Program (DASP) is underpinned by the suitability of, and the level of compliance with, the Defence Aviation Safety Regulations (DASR). Entities that operate within the regulatory framework seek to maintain compliance in two ways:

1. By developing and implementing organisational systems, supported by processes and instructions, that address the regulations

2. By developing feedback mechanisms to verify that the processes and instructions have been followed, and remain suitable for the purpose of meeting regulatory requirements.

4.1.4.2 Regulatory oversight contributes to aviation safety by identifying potential compliance concerns that may then be further evaluated, and addressed if necessary. Compliance with DASR also mitigates systemic and human errors that dominate hazardous safety events. Oversight is a systematic means of monitoring entities that operate within the regulatory framework for their level of understanding and observance of the regulatory system, as indicated by their policies and instructions and their adherence to them. A natural consequence of regulatory oversight is that it also provides insight into the suitability and effectiveness of the regulatory controls themselves, which is essential for their ongoing development.

4.1.4.3 A key component of an effective regulatory framework is ensuring that regulated entities have a clear understanding of when, why and how DASA may take action in the event of regulatory breaches or unresolved safety performance issues. The DASP enforcement policy supports compliance with the DASR through application of a consistent framework, and has been developed with due consideration of the Defence Aviation environment and associated Commonwealth legislation.

4.1.4.4 Accident and incident investigation also provides opportunity for oversight of compliance with required aviation safety processes and systems, as the structured means of determining and assessing the factors that led to the accident or incident should reveal any deficiencies regarding compliance with the DASR. However, accident and incident investigation is outside the scope of this chapter and further guidance can be found under chapter 4.4 Independent Investigative Capability.

Purpose

4.1.4.5 This chapter describes the principles that comprise the 'Oversight and Enforcement (O&E)' component of the DASP. This chapter applies to all entities regulated under the DASR, and any entity

Superseded

performing Defence Aviation functions that are regulated by a DASA-recognised Civil Aviation Authority (CAA) or Military Aviation Authority (MAA).

Regulatory Requirement

4.1.4.6 DASR GR.60 specifies regulated community compliance oversight and enforcement obligations; and requires all Defence, civilian and contractor entities operating within the Defence Aviation Safety regulatory framework to comply with the DASR. Regulatory compliance is subject to ongoing oversight at multiple levels within the framework, and results of the oversight are used to:

1. assure that regulated entities are complying with the DASR,
2. inform future DASR development, and
3. refine the processes and procedures that support implementation of the DASR.

4.1.4.7 Regulated entities are required to ensure that they comply with their applicable aviation safety processes and instructions. Ensuring compliance requires the systematic and routine review of organisational management elements, to assess compliance with the Authority's requirements relating to aviation safety. Each regulated entity should establish arrangements and processes, including a compliance review schedule, to ensure compliance with the DASR.

Oversight

4.1.4.8 Oversight is required to provide confidence to the Defence Aviation Authority (Defence AA) that Defence is executing Aviation operations safely, in accordance with legislated requirements. DASA's Oversight function is executed through the O&E operating model at Figure 1, which assists to define DASA's and regulated entities' obligations to effectively establish and maintain DASR compliance.

4.1.4.9 The model at Figure 1 is separated into an upper (forward-looking) cycle (i.e. DASR implementation) and a lower (DASA feedback) cycle. Both cycles must be effective in their own right for an effective regulatory outcome. This is achieved by mapping each element of the model to corresponding personal accountabilities, responsibilities, expected outcomes and associated DASA (and other local) policy.

Superseded

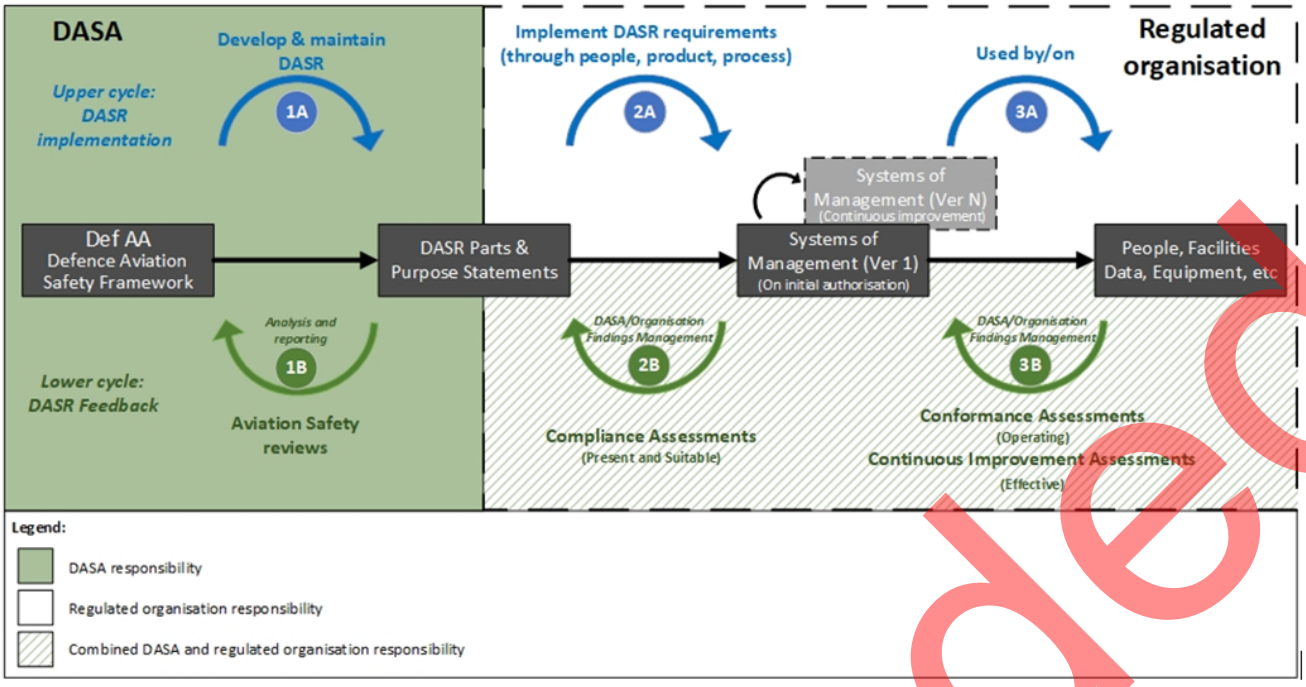


Figure 1: The Oversight and Enforcement operating model

4.1.4.10 **Operating model components.** The following model components apply:

1. **Implementation loop 1A** – Develop and maintain DASR. Refer DASPMAN Vol 1.

2. **Feedback loop 1B – Aviation Safety reviews.** Analysis and reporting on DASR compliance and safety intelligence is designed to provide senior decision makers, who have accountabilities under JD 21/2021, with a relative picture of DASP status, contemporary Aviation Safety issues, and an assessment of the aviation safety performance of regulated organisations. Issues raised can generate actions or be recommended for further monitoring. Reporting is achieved through the Defence Aviation Safety – Annual Report (refer section 2), and Airworthiness Boards (refer section 13).

3. **Implementation loop 2A – Implement DASR requirements.** Organisations subject to DASR are expected to implement locally-tailored and contextually-appropriate management systems to effectively comply with DASR. Systems are used to define any interaction of people, products (i.e. technology) and processes. However, outcomes from systems are rarely consistent, with their effectiveness continuously varying (e.g. through changes in local application context, staff churn and competencies, competing Service and organisational policies and priorities, etc). Entities are therefore expected to self-monitor and implement corrective actions as necessary.

4. **Feedback loop 2B – Compliance assessments.** Compliance assessments detect if documented management system meet required regulatory outcomes (i.e. 'Present' and 'Suitable' in the PSOE oversight construct—see below). DASA Findings document DASR non-compliances.

5. **Implementation loop 3A – Using documented management systems.** Once entities' documented management system are approved and promulgated (i.e. found to be DASR-compliant at the time of the DASA assessment), DASA expects the entity's staff, facilities, data, equipment etc to conform to that system[1].

Superseded

6. **Feedback loop 3B – Conformance and continuous improvement assessments.** Conformance assessments are designed to detect if staff, facilities, data, equipment, etc are conforming to the promulgated management system. By inference, if staff conform to DASA-approved systems, the organisation will remain compliant with DASR (i.e. 'Operating' in the PSOE oversight construct—see below). These assessments also look for local feedback data and safety intelligence that validate the documented management systems are effectively meeting DASR hazard control outcomes (i.e. 'Effective' in the PSOE oversight construct— see below).

4.1.4.11 **Present-Suitable-Operating-Effective (PSOE) model.** The PSOE Model was introduced into civil aviation with the release of ICAO Annex 19 Safety Management in 2013, defining outcome-based safety management requirements against the hazard of compromised Aviation Safety. Importantly, when ICAO Annex 19 was released, an ICAO sub-committee (the Safety Management International Collaboration Group – SMICG) published PSOE construct guidance, ICAO (2012) - SMICG Safety Management System Evaluation Tool), providing it as an effective Annex 19 oversight methodology. Specifically, the PSOE construct allowed assessment of regulated entities' maturity based on the effectiveness of hazard control implementation and incorporation of continuous improvement activities. The SMICG defined four progressive 'stages' of an entity's Safety Management System maturity (ie PSOE). In turn, defence has tailored these PSOE definitions (see section 5.4) to make them applicable to all DASR(not just SMS), due to the advantages the PSOE assurance methodology provides.

4.1.4.12 Oversight activities are conducted against defined PSOE criteria, by qualified staff; who should be substantially independent of the area being reviewed. A PSOE assessment is carried out through two very discreet activities—the Desk Top audit and an On-Site Performance Assessment—as follows:

1. **Desk top assessment.** The Desk Top assessment (for 'Present' and 'Suitable'), is an assessment of the entity's documented management system (i.e. the organisational approval basis) including Orders, Instructions and Procedures (OIP) that are used to comply with the relevant DASR. The Desk Top assessment gathers evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable' for the scope of the entity's authorisation.

2. **On-site assessment.** The on-site assessment (for 'Operating' and 'Effective') is carried out to provide assurance that the documented management system (i.e. the basis for the organisational approval) is operating as expected and effectively providing risk mitigation to the threats that the DASRs have been implemented to treat.

3. An on-site assessment can be conducted as part of an initial application for organisational approval or as part of an ongoing oversight program. The ongoing oversight program periodicity may be influenced by adopting a risk based approach for some organisations or operational activities influenced by safety intelligence information.

Enforcement

4.1.4.13 In addition to oversighting ongoing compliance with the DASR, DASA is also required to enforce the ongoing compliance of Defence Aviation organisations. The concept of enforcement within the DASP covers the following spectrum as outlined in Figure 2 below:

1. **Reinforcement** of requirements, through mechanisms which include providing education, updating regulatory material, and reinforcing positive behaviours.

Superseded

2. **Compelling** compliance, through the raising of DASR Findings or issuance of Directives.

3. **Deterrence** of ongoing operations with non-compliances through the suspension or removal of a DASR approval.

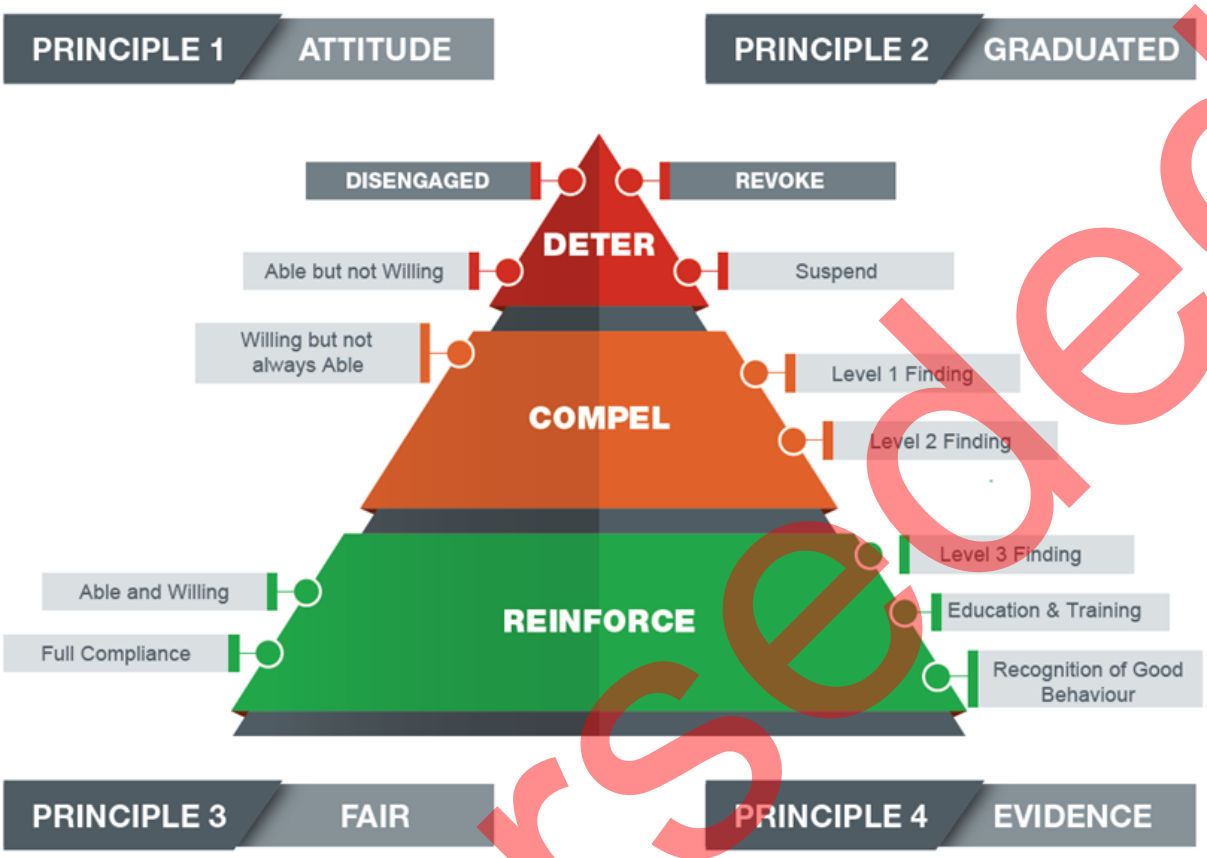


Figure 2: Enforcement Model

DASA Enforcement Principles

4.1.4.14 The DASA enforcement policy is founded on the following principles:

1. **Principle 1**: Enforcement shall consider organisations/operator attitudes.

   i. Enforcement will give due and equitable consideration to organisational attitudes and distinguish consistent or premeditated non-compliance, from non-compliance resulting from unintentional errors or deviations.

2. **Principle 2:** Enforcement action shall be graduated.

   i. Enforcement action shall commence at the lowest level commensurate with the increase in risk to aviation safety and willingness of the regulated entity to address the non-compliance, and should be escalated only when necessary to secure compliance.

   ii. The rate of escalation is cognisant of the underlying aviation safety risk, prior interaction between DASA and the non-compliant entity, and the entity's motivation and capacity to comply with the regulations.

3. **Principle 3:** Enforcement action shall be fair and proportionate.

Superseded

i. Full details of the nature of the non-compliance will be disclosed, along with supporting evidence.

ii. The response to the non-compliance will be proportionate to the identified breach and the increased risk to aviation safety.

iii. Enforcement action will relate directly to the non-compliance and associated increase in safety risk.

iv. In the interests of procedural fairness, regulated entities will be afforded the opportunity to review and respond to an identified non-compliance prior to enforcement action being initiated.

4. **Principle 4:** Enforcement decisions shall be independent and evidence based.

i. Enforcement decisions will be independent, transparent and underpinned by objective evidence.

ii. Enforcement decisions will not be influenced by personal, political, capability or financial considerations.

Proportionate and Graduated response

4.1.4.15 The key factors influencing a DASA decision to escalate an enforcement action include:

1. the nature, seriousness and extent of the non-compliances, including the safety implications and the intent (if applicable) of the non-compliances;

2. the willingness of the organisation to address the non-compliances and ensure that they are not systemic;

3. the nature and sufficiency of available objective evidence of the non-compliances;

4. the action required to effectively and efficiently address the aviation safety risks that have been identified or are likely to arise;

5. the need to obtain expert assistance on a complex technical or operational issue, including legal advice;

6. the obligation to be fair, consistent, impartial and proportional in taking enforcement action.

4.1.4.16 While imposing a sanction that suspends or revokes an entity's approval is a real and credible course of action, as part of a graduated response to serious and/or continuing non-compliances, this may not always be in the interests of the Service. If DASA is considering an unscheduled act of limiting, suspending or revoking an entity's approval, the relevant Environmental Commander or Group Division Head is to be consulted before any proposed sanction that suspends or revokes an entity's approval is imposed. This level of consultation is not required where a scheduled revocation takes place, for example removal or amendment of an organisational approval after an aircraft type is withdrawn from service.

Coordination with external bodies

4.1.4.17 In certain circumstances, DASA may identify a regulatory breach or safety concern that falls under the jurisdiction of an external CAA or MAA. If this occurs, DASA will consult with external

Superseded

agencies as necessary, to ensure a coordinated approach to any enforcement or remedial action is undertaken.

4.1.5 Promote Aviation Safety

Introduction

4.1.5.1 The Defence Aviation Safety Authority (DASA) is responsible to the Defence Aviation Authority (Defence AA) for enhancing and promoting Aviation Safety through the implementation of a Defence Aviation Safety Program (DASP). The DASP promotes safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety; to support the development of a generative safety culture; and to assure the effective management of aviation safety risks.

4.1.5.2 The second function of the Defence Aviation Safety Program (DASP) is 'Promote Aviation Safety'. This function comprises the following elements:

1. Aviation Safety promotion and dissemination of safety information

2. education, training and communication.

4.1.5.3 While Function 2 of the DASP explicitly directs 'promotion', all five functions require engagement with stakeholders. DASA cannot implement these functions in isolation. Ongoing engagement with stakeholders internal, external to the Authority, internal and external to Government is required to improve aviation safety outcomes and support capability.

Aviation Safety Promotion and Dissemination of Safety Information

4.1.5.4 A key tenet in promoting Aviation Safety is the two-way communication flow of safety information. Aviation Safety promotion can take many different forms, and cover a wide spectrum of activities— from dissemination of general information on Aviation Safety, to visits by DASA personnel. In either case, the establishment and management of relationships is paramount.

4.1.5.5 Figure 1 details the regulatory model, which includes DASA and the Defence Aviation Community. DASA uses its Engagement and Promotion Strategy to 'manage relationships' between the two entities.

Superseded

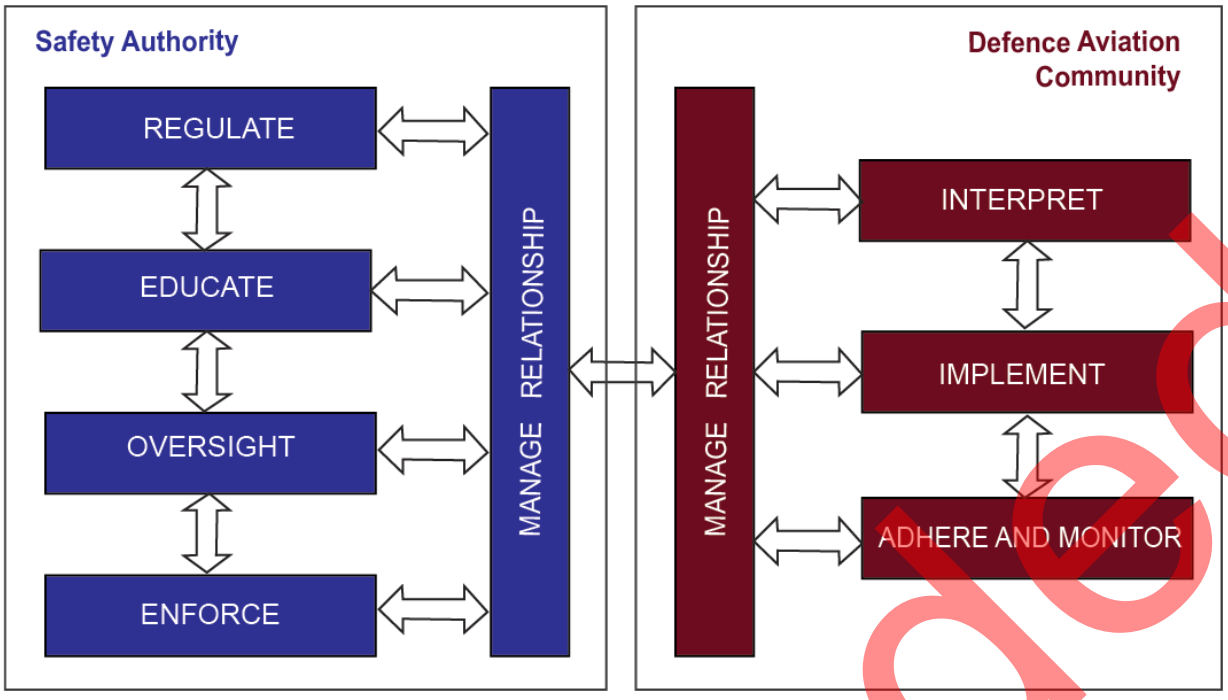


Figure 1: The Regulatory Model

4.1.5.6 The 'promoting Defence Aviation Safety through education, training and dissemination of safety information' function employs a number of strategies to disseminate Aviation Safety information, including:

1. participation in dedicated safety stand-down days
2. publication of safety and regulatory magazines, (i.e. Spotlight)
3. sponsoring conferences and convocations
4. Defence Aviation Authority (Defence AA) safety messages
5. publishing the Defence Aviation Safety - Annual Report (DAS-AR)
6. maintaining safety information recording and analysis systems, such as Sentinel and Salus
7. posting safety information, such as Defence Aviation Safety Regulation (DASR) awareness briefs on the DASA web site
8. visits by DASA personnel.

4.1.5.7 Of particular importance is the ability to disseminate safety information in a timely manner, particularly in response to investigation of an accident or serious incident. The DASP provides several ways for DASA to disseminate urgent safety information, enabling the selection of the most appropriate way, cognisant of the specific circumstances.

Superseded

4.1.5.8 Visits by DASA personnel to regulated entities are also an important means of promoting Aviation Safety and disseminating aviation safety information— providing the opportunity to discuss particular safety aspects in detail.

Education and Communication

4.1.5.9 All personnel within the Defence Aviation sector, who undertake or directly support aviation activities, should receive sufficient education to provide a general understanding of Aviation Safety. Commensurate with each person's aviation safety responsibilities, they should receive further safety education. The DASA sponsors a wide range of Aviation Safety regulatory and technology training courses that personnel may nominate to attend.(see www.defence.gov.au/DASP/Training/Default.asp)

4.1.5.10 In addition to delivering and sponsoring Aviation Safety education, DASA also facilitates a number of opportunities for two way dialogue on Aviation Safety, including:

1. continuation training programs
2. DASA Newsbreak
3. DASA workshops
4. international visits to, or by, other regulators/safety bureaus or equivalent organisations
5. conferences and symposiums
6. regulated community forums
7. Airworthiness Boards and convocations
8. audits.

4.1.5.11 Commanders and managers within the Defence Aviation sector should encourage their personnel to take maximum advantage of the opportunities afforded to discuss Aviation Safety. Additionally, personnel should endeavour to further their Aviation Safety knowledge through the various means currently available. Members of the regulated community should advise DASA of opportunities to improve Aviation Safety communication so that DASA may consider implementing appropriate improvements.

4.2 DASA's Ensure functions

4.2.1 Introduction

4.2.1.1 DASA carries out two ensure functions in direct support of the management of Aviation Safety by the Defence aviation community:

Superseded

1. provision of aviation safety management system products and services
2. provision of structural integrity engineering product and services.

4.2.2 Aviation Safety Management System Products and Services

(Reserved)

4.2.3 Structural and Propulsion System Integrity Centre of Expertise (CoE) Services

Introduction

4.2.3.1 The Directorate of Aviation Engineering (DAVENG) has a mandate to support Commanders to ensure structurally-airworthy platforms, and is the Defence Centre of Expertise (CoE) for Aircraft Structural Integrity Programs (ASIPs), Propulsion System Integrity Programs (PSIPs) and Non-Destructive Testing and Composite Technologies (NDT&CT).

4.2.3.2 In this capacity, DAVENG supports associated organisations with specialist advice, design services and training in these fields to maximise Defence capability. DAVENG also provides stewardship of sovereign capability initiatives and input into relevant policy frameworks.

4.2.3.3 For the avoidance of doubt, these services are provided by DAVENG in a separate capacity to the DASA Functions described in Chapter 4.1.

Aircraft Structural Integrity (ASI) and Propulsion System Integrity (PSI) and Services

4.2.3.4 **ASI and PSI CoE Services.** DAVENG supports the Defence ASI and PSI community with the following services:

1. advice on ASIP and PSIP establishment and execution
2. advice to CASG on ASIP and PSIP-related contracting and governance
3. CoE review of ASIP and PSIP products and outputs on behalf of CASG
4. technology specialist advice, such as supporting risk assessments
5. where appropriate, and when agreed, coordination and management of major ASI / PSI issues or tasks on behalf of CASG
6. support to Defence ASIP and PSIP policy artefacts on behalf of Capability Managers and CASG.

4.2.3.5 **SI Sovereign Capability Stewardship.** The SI Sovereign Capability encompasses the specialist technical capabilities that come to bear for critical and high-value SI activities where sovereign oversight and/or indigenous solution development is required to ensure Defence objectives are met. Under their Defence SI CoE capacity, DAVENG stewards the SI Sovereign Capability initiative, and chairs the Capability Management Board advocacy and governance forum. More information on the SI Sovereign Capability initiative and governance is available in the SI Sovereign Capability Strategy document, which can be provided by DAVENG to relevant parties upon request.

Superseded

4.2.3.6 **Training Courses.** DAVENG sponsors the following three specialist courses:

a. ASI Familiarisation Course

b. Helicopter Structural Engineering Familiarisation Course

c. Propulsion Systems Engineering Familiarisation Course.

4.2.3.7 These three practitioner courses include components intended to teach ASI and PSI fundamentals and best practice, as well as components intended teach how ASI and PSI programs support DASR compliance.

NDT Appointments, Training, Certification and Authorisation

4.2.3.8 **ADF NDT Responsible Level 3 Appointment.** DASR 145.A.30(f) requires DASR 145 Maintenance Organisations (MOs) to appoint an NDT Responsible Level 3 (RL3) as the management position responsible for implementing a training and certification system compliant with European standard EN4179 Qualification and approval of personnel for non-destructive testing (refer DASP Manual Volume 3 Chapter 8.3.2).

4.2.3.9 To ensure all ADF Non-Destructive Inspection Technicians (NDITECHs) are trained to the same level of competency and to avoid the burden of each ADF DASR 145 MO appointing their own NDT RL3 and establishing NDT training and certification frameworks, DAVENG performs the Defence NDT RL3 function and manages all NDT training and certification activities for ADF members, Department of Defence employees and other staff members working within ADF DASR 145 MOs. The Director of Aviation Engineering appoints a suitably qualified senior NDITECH to be the Defence NDT RL3, with that individual approved by the DASA as a Form 4 Holder.

4.2.3.10 **ADF DASR 145 MO NDT Certification Framework.** ADF DASR 145 MO Quality Managers are responsible for ensuring that staff conducting NDT are certified by the Defence NDT RL3 (or delegate) before being authorised to certify maintenance. This includes:

1. staff who have obtained training from external training providers or third parties

b. external Industry or Contracted service providers working in an ADF DASR 145 MO.

4.2.3.11 In order to support ADF DASR 145 MOs, the Defence NDT RL3 maintains a NDT training and certification system (both initial and ongoing training / certification) that meets Defence's needs and complies with DASR 145.A.30(f) requirements.

4.2.3.12 **ADF DASR 145 MO Authorisation of NDT Staff.** DASR 145.A.30(f) requires personnel who conduct NDT be certified in accordance with EN4179. Under Defence's NDT certification system, the process followed is:

a. the Defence NDT RL3 (or delegate) ***certifies*** the technician as meeting the requirements of EN4179 for the applicable NDT method or technique, and subsequently,

b. the MO Quality Manager (or delegate) ***authorises*** the technician to conduct NDT maintenance within the scope and validity of the NDT certification.

4.2.3.13 The Defence NDT RL3 (or delegate) will issue Certification records via PMKeyS proficiencies (primary system) or a Minute. ADF DASR 145 MOs are to check the scope and currency of NDT proficiencies on PMKeyS prior to authorising staff to perform NDT. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiencies.

Superseded

4.2.3.14 **Additional Information.** More detailed information on NDT training and certification services provided by DAVENG, including training courses and frequently asked questions, is available on the DASA NDT&CT Website.

NDT Engineering Services

4.2.3.15 DAVENG NDT&CT Engineering Section develops NDT procedures, inclusive of introducing new NDT technologies, in support of ADF capability requirements. Engineering Section provides the following services to ADF units and ADF support contractors:

1. development of DASA approved NDT Instructions for Continuing Airworthiness (ICA), including:
    i. platform specific procedures
    ii. NDT general procedures (AAP 7002.043-36)
2. CoE NDT advice on the selection of appropriate NDT techniques
3. assistance with the introduction of new NDT technologies in support of ADF capability requirements
4. testing and evaluation of NDT support equipment for introduction into the Defence inventory
5. technical review of platform-specific NDT publications and associated procedures
6. NDT Information Review (IR) of standards, practices and equipment
7. provision of other NDT CoE advice
8. manufacture of certified NDT reference standards.

Composite Repair Training and Certification

4.2.3.16 **ADF DASR 145 MO Composite Repair Certification Framework.** Personnel who conduct composite repairs must be trained and certified in accordance with SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document (refer DASP Manual Volume 3 Chapter 8.3.2). On behalf of all ADF DASR 145 MOs, DAVENG conducts the training and certification (including re-certification) for all personnel who perform composite repairs. DAVENG staff issue the PMKeyS proficiency P124689 *Composite & Adhesive Bonding Recertification* upon successful completion of training requirements.

4.2.3.17 **ADF DASR 145 MO Authorisation of Staff to Conduct Composite Repair.** MO Quality Managers (or delegates) are responsible for verifying that technicians hold a valid PMKeyS proficiency for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

4.2.3.18 **Additional Information.** More detailed information on Composite Technology training and certification services provided by DAVENG, including training courses, is available on the DASA NDT&CT Website.

Superseded

4.3.1 Introduction

4.3.1.1 This section provides a description of Delegates of the Safety Authority (DoSA), their purpose, selection and scope of delegations.

Purpose

4.3.1.2 A DoSA is an individual who has been formally delegated a DASA responsibility (Letter of Delegation) by DG DASA and is considered an agent of the DASA when exercising that delegation. Delegations may cover general assurance function carried out by the Authority (such as Occurrence Report assessments or standards interpretation) or provision of DASA authorisations such as a Military Permits To Fly (MPTF). In all instances, the delegation scope must be linked to an explicit DASR obligation of DASA.

4.3.1.3 A DoSA performs assurance activities and critical roles that extend the competence and capacity of the DASA. DoSAs are placed within the aviation community to provide greater access and insight to regulated entities or activities. DoSA delegation scope varies, but is invariably linked to the role of an incumbent. This role may be as a senior engineer, test pilot and/or subject matter expert (SME) related to a specific platform or regulatory domain providing in-depth knowledge to support aviation safety assurance. When in proximity to the regulated entity a further benefit is realised with greater education and promotion for the organisation and DASA 'eyes and ears' in the field.

4.3.2 Selection

4.3.2.1 DoSA applicants are suitable for nomination by virtue of the roles they fill within the aviation community as senior members within their domain. Nomination for a DoSA is via a Form 104 submitted to the DASA Registry. Within Form 104 the member identifies the need, and the qualification, training and experience (QTE) that enables them to perform the role relevant to the scope of delegation being awarded. For each type of DoSA role, there are mandatory requirements that the nominee must meet. Annex A contains a baseline set of generic QTE requirements.

4.3.2.2 DASA staff will assess nominated DoSAs through a standard process to assess their suitability and provide a recommendation to DG DASA. The assessment process will usually involve two interviews; the first a preliminary interview to broadly assess an individual's suitability to execute delegated authority functions, and a final interview with DG DASA to confirms the skills, knowledge and attitude of the applicant. If suitable, DG DASA will authorise a delegation to the individual.

4.3.2.3 A DoSA delegation is issued in the form of a letter directly from DG DASA. Delegates are provided an induction pack containing foundational information and are supported under the DASA Business Management System as a member of the DASA. Delegations are generally awarded to nominees filling a specific role. Upon leaving the position in which DoSA was awarded, eg formal posting, the members delegations are rescinded. In exceptional circumstances, extensions may be negotiated directly with DG DASA, via the applicable DASA directorate. DASA may amend or revoke a delegation at any time at the discretion of DG DASA.

Superseded

4.3.3 Scope

4.3.3.1 The scope of duties and responsibilities of the DoSA depends on the capacity in which they have been delegated. The following list the categories functions delegated:

1. Occurrence Report Assessment for specific functions related to DASR 21, DASR M and DASR 145
2. Airworthiness Directives (AD) for specific functions related to DASR 21 Subpart A
3. Military Permit To Fly (MPTF) for other than flight test, including flight conditions, for specific functions related to DASR 21 Sub-part P
4. MPTF for flight test, including flight conditions, for specific functions related to ASR 21 Sub-part P
5. Military Certificate of Airworthiness (MCoA) for specific functions related to DASR 21 Sub-part H
6. Airworthiness Standards for specific functions related to DASR 21.A.16B
7. Other categories as considered necessary by the DASA for effective management of aviation safety.

4.3.3.2 The current classes of DoSA are:

1. **Platform DoSA:** A Platform DoSA has the widest scope of functions and may include assurance of Military Type Certificate Holder (MTCH) actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. The Platform DoSA is ostensibly delegated to the incumbent CENGR of the platform MTCH organisation and provides assurance in the DASR Part 21 Initial Airworthiness domain.

b. **Flight Test DoSA:** A Flight Test (FT) DoSA has a scope of functions that are relevant to assuring the safety parameters within the DASR Part 21, Subpart P Flight Test domain. Their function is to provide assurance through the approval of operational flight conditions specifically for Flight Test activities and issue of MPTF authorisations. Flight Test DoSAs will invariably have the qualifications, training and experience (QTE) of Flight Test qualified aircrew relevant to certain platforms and will provide the function as part of their position within Flight Test organisations.

c. **Standards DoSA:** A Standards DoSA has a scope of function relevant to a specific technology/design discipline domain. They perform the prescribe and interpret airworthiness design requirements and standards function for their assigned technology, and provide advice to command on the management of risk associated with non-compliance to the prescribed airworthiness design requirements. Standards DoSAs have been established to cover Aeronautical Life Support Equipment (ALSE), Air Navigation Services (ANS) and Aerial Delivery technologies, and are delegated to SMEs posted to the unit charged with managing these technologies.

d. **Training DoSA:** A Training DoSA has a scope of function to assure that the content delivered in DASR 147 Maintenance Training Organisations is suitable to meet the requirements of DASR 66 licensing.

Superseded

e. **Licencing DoSA - ATC:** An ATC Licencing DoSA has a function relevant to the assurance that persons issued with a licence meet the specific requirements and are suitably qualified and experienced to perform licenced air traffic control functions.

f. There may be requirements/opportunities for other DoSA roles in the future, such as in Aircraft Type Certification. These will be identified and documented when implemented.

4.3.3.4 The concept of a Project DoSA has been discontinued since the scope was not linked to exercising any explicit DASR obligations. Notwithstanding this, the incumbent Project Engineering Manager (PEM) is required to have a comprehensive understanding of initial and continuing airworthiness DASR in order to ensure project acquisition activities enable the issue of appropriate and timely DASA authorisations, and subsequent handoff to the gaining MTCH and Continuing Airworthiness Management Organisation (CAMO).

4.3.3.5 For each class of DoSA, there are certain QTE requirements that the nominee must possess or have achieved. More information on the QTE and mandatory requirements of each DoSA will be provided through the nomination process. DASA will also endeavour to support additional training where possible to assist in the execution of the duties of the DoSA. DASA convenes a DoSA convocation to induct new DoSAs, discuss topical DoSA subjects and implement changes applicable to their duties.

4.3.3.6 When exercising their delegation, a DoSA is undertaking this function as part of the DASA, using DASA authorised procedures. Annex B contains specific functional DoSA information and reading. Whilst performing duties under the DoSA capacity, the DoSA is subject to internal DASA process audits in how they execute the functions specific for their scope.

4.3.4 DoSA Independence and Reporting

4.3.4.1 A critical safety feature of the Defence Aviation Safety Program (DASP) is the separation between assuring and ensuring aviation safety through the application of the DASP. Given nominated individuals may be performing tasks that ensure Aviation Safety in their primary employment role, there is a natural concern for a conflict with their DoSA role of *assuring* Aviation Safety. In their capacity as DoSA, it is important that they are able to maintain objectivity (without undue pressure), evaluate their independence, have adequate time to exercise the delegation and maintain conscious awareness that the individual is representing DASA when exercising the delegation.

4.3.4.2 Where instances arise that the DoSA has been part of a decision that ensures aviation safety in their regulated community role, it is possible that their independence to assure aviation safety for the same issue is compromised. The DoSA is expected to have a level of competence and judgement to remove themselves from the assurance role and advise DASA.

4.3.4.3 Where the DoSA identifies conduct or behaviours in the regulated community that may represent DASR non-compliances, non-conformances or where associated hazards and risk are not being eliminated or minimised SFARP, the DoSA is expected to notify DASA of their concerns. DG DASA enables the DoSA to inform their office directly where the nature of the conduct is serious. It is important to note that the DoSA role only provides 'in the field' oversight/awareness and the DoSA is not expected to execute DASA enforcement policy, which remains the duty of the relevant DASA Directorate staff responsible for that oversight and enforcement.

Superseded

Annexes:

(a) DoSA Qualifications, Training and Experience (QTE)

(b) Specific Functional DoSA Information and Reading

4.4 Independent Investigative Capability

4.4.1 Introduction

4.4.1.1 Joint Directive 21/2021 The Defence Aviation Safety Framework directs DASA to establish an independent investigative capability aligned to ICAO standards and recommended practices (SARPs). This capability is provided by the Defence Flight Safety Bureau (DFSB) within DASA. This chapter describes how DFSB meets the responsibilities described in the Defence Aviation Safety Program Manual Volume 1 Requirements for the DASP.

4.4.1.2 Annex 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation, requires that the accident investigative authority be independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. Director DFSB is accorded specific responsibilities and the power for autonomous action outside both DASA and the command chain to directly report matters of concern to the Defence Aviation Authority (Defence AA). DASP Manual Volume 1 details DFSB's functional independence of DASA Directorates and powers for autonomous action outside of DASA and the command chain.

4.4.1.3 DFSB and the Australian Transport Safety Bureau (ATSB) have a Memorandum of Understanding (MoU) for cooperation relating to transport safety investigation. The MoU deals with mutual assistance, sharing of expertise, mutual training opportunities, joint and parallel investigations, and the participation by members of either organisation in investigations carried out by the other organisation. The MoU is available on the DFSB intranet site.

4.4.1.4 DFSB is also responsible for promoting and enhancing aviation safety, which requires more than policy and processes. DFSB recognises the complex social and cultural work environments within the Defence aviation community, and works to positively influence safety attitudes and behaviours.

4.4.2 Functions of DASA-DFSB

4.4.2.1 In accordance with DASP Manual Volume 1, DFSB is responsible for a number of functions in support of both retrospective investigation of Defence accidents and incidents and proactive approaches to preventing military accidents and enhancing flight safety. These functions are:

1. **Aviation safety reporting framework.** DFSB maintains the Defence Aviation safety reporting framework by:

   i. Developing and maintaining the Defence Aviation safety reporting system. DFSB meets this requirement through the management of the Defence Corporate Safety Reporting Tool: ASR in Sentinel. ASR in Sentinel provides a closed loop process for the reporting, investigation, tracking and review of aviation safety events and issues. Sentinel is available to all Defence aviation personnel with access to the 3Defence Protected Environment (DPE). DFSB

Superseded

maintains an ASR Service desk, at asr.servicedesk@defence.gov.au or (02) 5130 7704 to provide ASR related support to the Defence aviation community.

ii. Developing and maintaining the appropriate documentation to define the reporting framework. The Defence Aviation Safety Manual (DASM) defines the reporting framework, including reporting and notification requirements, categorisation and classification of aviation safety events, and types of reporting. Additional guidance material is available on the DFSB intranet site.

iii. Establishing a confidential reporting scheme to enable confidential reporting of issues that effect, or might effect, aviation safety. DFSB provides and maintains a confidential reporting system that allows individuals to report aviation safety issues or concerns where they are unwilling to use the normal aviation safety reporting system for fear that they may be disciplined, ridiculed or otherwise disadvantaged if they do so. The DASM provides policy and guidance on confidential reporting. Individuals can report via email directly to Dir DFSB or through the link on the DFSB intranet site.

iv. Defining notification requirements and mechanisms (immediate and routine) for aviation safety reports. Notification requirements and mechanisms are defined in the DASM, and guidance is provided on the DFSB intranet site. All aviation safety events and issues must be reported into ASR in Sentinel, or through the offline ASR form AE774. Immediately reportable matters (as defined in the DASM) must be notified to the DFSB Duty Officer on (02) 6144 9199.

v. Defining taxonomies to facilitate safety information exchange that are compatible with the ICAO Accident/Incident Data Reporting system and broadly aligned with those of the Australian Transport Safety Bureau (ATSB). DFSB has embedded the aviation safety reporting taxonomies within ASR in Sentinel. More information is available on the DFSB intranet site. DFSB also manages the Aviation Safety Intelligence Portal, Salus, which supports the sharing, exchange and analysis of safety data within Defence, and between DFSB and the ATSB. The MoU (referenced in para 3) further supports alignment of safety reporting and information exchange.

vi. Defining the classification system for aviation safety reporting. The classification system for aviation safety reporting in Defence is described in the DASM. Aviation safety events are defined by both realised and potential consequences with reference to Personal Injury Level (PIL), Aircraft Damage Level (ADL) and Perceived Risk Level (PRL). Aviation safety events are classified in accordance with Table 1. More information is available in the DASM or on the DFSB intranet site.

Event Classification	Description
Class A	PIL of fatal ADL of destroyed
Class B	PIL of serious 3ADL of Substantial

Superseded

	PRL of High or Very High
Class C	PIL of minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event Classification

vii. Developing processes to monitor the health of the aviation safety reporting system. DFSB monitors the aviation safety reporting system through internal mechanisms, including daily review of aviation safety reports and periodic research activities to examine specific features of the system, such as usability and data quality.

2. Safety data collection and processing. DFSB has established and maintains safety data collection and processing systems to capture, store, and aggregate and thence enable the analysis/exchange of safety data and safety information. Safety data refers to a defined set of facts or set of safety values collected from proactive or reactive safety related activities. Safety information is created when the data has been processed, organised, integrated and analysed in a given context. DFSB collects and manages safety data and information from:

   i. DFSB safety investigations.

   ii. Aviation safety reports and investigations from within the organisation's safety management systems and provided to DFSB (primarily through ASR in Sentinel).

   iii. Data collected by DFSB during the course of cultural surveillance activities (e.g. cultural surveys).

3. In addition to ASR in Sentinel, DFSB also maintains the following systems:

   i. **Salus.** The DASA Salus application is designed to support the sharing, exchange and analysis of safety data within and between DASA and the Defence aviation community, with the goal of enhancing aviation safety. Salus is available on the DPE, and more information and guidance can be found on the DFSB intranet site. DFSB maintains a Salus service desk, at salus.servicedesk@defence.gov.au, to provide support and guidance to users.

   ii. **Snapshot Survey.** The DFSB Snapshot Survey is an annual survey administered to personnel from Air Force, Army Aviation, Fleet Air Arm, Air Domain and other selected domains. The survey captures information on a broad range of issues that impact the safety, performance and overall health of the participating organisations. DFSB generates a range of tailored Snapshot reports targeting different levels of the organisation, and aims to provide information on the workgroups safety/organisational climate, benchmarked

Superseded

against other units. The reports allow commanders to track changes from one year to the next, identify risks, and assess the effectiveness of recent interventions. More information is available on the DFSB intranet site.

4. Joint Agency Aviation Safety Analysis Coordination Group (JAASACG). DFSB is also a member of the JAASACG, which facilitates the data analysis and reporting function under Australia's State Safety Program. Conducting safety data exchange and analysis through the JAASACG assists in maintaining strong stakeholder relationships and allows safety data to be shared and research and analysis efforts coordinated between Government Agencies to improve aviation safety.

5. **Analysis, Research and Review.** DFSB conducts a range of applied safety data analysis and research activities to inform DASA, the Defence Aviation Authority and the broader Defence aviation community. DFSB produces a range of products, including:

   i. The DFSB Annual Review of Defence Aviation Safety Statistics, input to the Defence Annual Safety Annual Report, Safety Snapshot Culture Survey Reports, and supplementary reports as identified through ASRs and safety surveys.

   ii. Support to command in the use of safety data systems, including guidebooks, service desk support, training databases, and training content for DFSB safety courses. These products are available on the DFSB intranet site.

   iii. DFSB staff members attend a number of aviation safety, investigation, human factors and non-technical skills forums and conferences in order to provide internal learning opportunities, benchmarking against international and domestic military and civilian agencies, and to support industry wide learning.

   iv. DFSB produce and support targeted human factors programs, primarily fatigue and non-technical skills related policy and guidance. These programs are described in the DASM, and through guidebooks and resources on the DFSB intranet site.

6. **Independent Investigation.** DFSB provides independent investigation and reporting of all accidents, selected incidents and selected systemic safety issues. This is achieved through:

   i. All Defence Aviation Class A and select Class B events are independently investigated by a DFSB Aviation Safety Investigation Team (ASIT) which reports directly to the Appointing Authority (AA). The AA is the designated commander at the appropriate level authorised to initiate and close aviation safety investigations. The DASM describes the appropriate levels and delegations. The ASIT operates under the procedural direction of DFSB.

   ii. DFSB investigations are functionally independent of the DASA regulatory directorates, and in general, of any other party of the entity that could conflict with, or influence, its objectivity.

   iii. The sole aim of a DFSB investigation is to prevent further occurrence and enhance safety outcomes through the identification and remediation of local and systemic deficiencies, and the improvement of risk controls. DFSB investigations do not apportion blame or liability.

Superseded

iv. DFSB investigations are conducted consistent with the international standards outlined by ICAO, and those described in the Australian Transport Safety Investigation (TSI) Act 2003. Given the unique nature and demands of military flying, a DFSB investigation may deviate from these provisions in such a manner that is considered necessary or appropriate under the specific circumstances. Additional guidance can be found in the DASM and on the DFSB intranet site.

v. In the case of Class B events, DFSB may decide not to undertake the investigation, leaving the responsibility to the command chain. This decision will be made in consultation with the relevant environmental commander, and taking into account the safety implications of the event, the suitability of the event for investigation by DFSB and the breadth of lessons likely to be learned from the event.

vi. DFSB provide specialist advice and support to aviation safety investigations undertaken within the command aviation Safety Management System.

vii. A Class A or Class B Defence event that involves a civil (VH registered) aircraft could be subject to an investigation by the ATSB in accordance with the TSI Act 2003, their priorities and mandates for investigation. The carriage and conduct of the investigation will be negotiated through DFSB in accordance with the extant ATSB/DFSB MoU.

viii. DFSB is responsible for the Defence Aviation Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) download and analysis capability. DFSB Investigation team have the specialist skills and equipment to support this capability. Policy and guidance on download and analysis of the CVR and/or FDR is found in the DASM.

ix. DFSB must be notified of all Class A and Class B events involving Australian Air Force Cadets (AAFC) in the course of their duties; however, all reporting and investigation resides within the AAFC's Aviation Safety Report system.

7. **Safety awareness, knowledge and action.** DFSB is responsible for fostering safety awareness, knowledge and action through promotional and education programs, and utilising the outcomes from safety analysis, research and investigative functions to influence organisational learning. This is achieved through a range of programs including:

i. **Aviation safety policy.** DFSB is responsible for the development and maintenance of key aviation safety policy, including the DASM, which supports the implementation of efficient and compliant aviation Safety Management Systems, and the Aircraft Accident WHS Manual to support the safety response to military aviation accidents and incidents.

ii. **Aviation safety training.** DFSB provides aviation safety reporting, investigation and safety data related education and training, through the provision of Aviation Safety Officer Initial and Advanced courses, Non-Technical Skills Trainer Course and the one-day Aviation Incident Investigation Course. DFSB is also responsible for the integration of aviation safety and non-technical skills content into the Defence training continuum.

iii. **Aviation safety awareness.** Through investigations, analysis of safety data, research reports and engagement with industry and military partners, DFSB

Superseded

identifies key lessons and safety issues. DFSB has a range of products and services to support the integration of those lessons into aviation safety policy and training, and to support positive organisational learning. These products include promotional materials, guidebooks and training materials and are available through the DFSB intranet site.

Superseded

5. Regulation of Aviation Safety

5.1 Introduction

(Reserved)

5.2. Aviation Safety Policy and Guidance

5.2.1 Introduction

5.2.1.1 This section describes the hierarchy of policy and guidance within the Defence Aviation Safety Program.

5.2.2 The DASP Manual

5.2.2.1 The DASP Manual is the central policy and guidance document within the DASP. It is issued by the Defence AA in three volumes:

1. Volume 1 *Requirements for the DASP* expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:
    i. legal and governance arrangements
    ii. independent safety assurance
    iii. the Defence Aviation Safety Regulation
    iv. the independent investigation of accidents and incidents
    v. independent reviews of Aviation Safety.
2. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.
3. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

5.2.3 Defence Aviation Safety Regulation

5.2.3.1 The DASR are contained within DASP Manual Volume 2. Their structure and naming convention are based on those applied by CASA and EASA.

5.2.3.2 The DASR comprise:

1. **General Requirements,** which define the scope and applicability of the DASR parts as well as establish requirements and provisions that are applicable to a significant proportion of regulated entities.
2. **DASR parts,** which are outcome based and specify requirements for each of the specifically regulated Aviation Safety topics. They may include associated supporting

Superseded

information in the form of Acceptable Means of Compliance (AMC) and Guidance Material (GM).

5.2.4 Regulatory Supporting Information

5.2.4.1 The AMC and GM embedded within the DASR are part of a broader range of supporting information published by DASA to promote understanding of, and compliance with, the regulations. All such supporting information is authoritative and does not mandate any action but may address regulatory requirements and provisions established elsewhere.

5.2.4.2 **Acceptable Means of Compliance.** AMC provides a generic and widely applicable approach to meeting the respective DASR requirements. DASA publishes AMC to provide certainty as to how the required safety outcomes may be achieved. Choosing to implement an AMC relieves the regulated entity of the burden of proving that the means of compliance achieves the intended safety outcome. The regulated entity demonstrates compliance with the DASR by appropriately implementing AMC. Regulated entities are free to propose Alternative Means of Compliance (AltMoC); however, the nature of Aviation Safety regulation means that the use of AltMoC may not be suitable in every instance.

5.2.4.3 **Guidance Material.** GM helps to illustrate the meaning of a requirement or provision in the DASR. It may provide relevant background, context or an explanation of the policy intent underpinning the respective regulation.

5.2.4.4 **Advisory Circulars.** Advisory Circulars (ACs) are typically issued to bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as AMC in the DASR. Examples include information regarding emerging Aviation Safety matters, information that enhances compliance understanding for existing regulation, or policy guidance for aviation issues that are not yet regulated but require further understanding.

5.2.4.5 **Factsheets.** Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

5.2.5 Design Requirements

5.2.5.1 Volume 1 of the DASP Manual requires DASA to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. DASA fulfils this responsibility through prescribing and interpreting the minimum requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

Prescribing design requirements

5.2.5.2 DASA employs three foundational principles when prescribing design requirements for aviation safety:

1. DASA recognises the design requirements prescribed by several CAAs and MAAs as providing a sound foundation for the safe design of Defence aircraft and aircraft-related systems and equipment
2. DASA may prescribe supplementation to these design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment

Superseded

3. DASA requires the conduct of a system safety program, to provide a robust means for identifying and analysing aviation hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

5.2.5.3 To provide assurance that safe flight is achieved through aircraft design, many CAAs/MAAs prescribe airworthiness design requirements, which are usually documented in an 'Airworthiness Code' (DASR 21.A.16A refers). An Airworthiness Code is a complete and consistent suite of design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. As the development and maintenance of an Airworthiness Code is a substantial undertaking, rather than define and publish its own Code, DASA recognises Airworthiness Codes prescribed by other CAAs/MAAs (i.e. DASA accepts that these Codes provide a safe foundation for aircraft and aircraft-related systems design).

5.2.5.4 DASA may recognise an Airworthiness Code when the Code as a minimum:

1. is prescribed by a recognised CAA/MAA
2. has demonstrated a sound safety record
3. prescribes a complete and consistent suite of airworthiness design requirements
4. is supported by associated guidance on how to achieve compliance with the airworthiness design requirements
5. is accessible, i.e. published by the CAA/MAA in a consolidated and easily accessed format.

5.2.5.5 While aircraft and aircraft-related systems/equipment designs developed to a DASA recognised Airworthiness Code should substantially meet the level of safety expected by Defence, supplementary airworthiness design requirements may need to be prescribed by DASA as a result of:

1. known inadequacies in the Code
2. novel features included in the proposed design that are not accommodated by the Code
3. proposed Defence-unique roles and/or operating environments that are outside the scope of the Code and/or
4. Defence policies or Australian legislated requirements not being covered by the Code.

5.2.5.6 Compliance with DASA-recognised Codes and prescribed supplementation is the principal means by which safe design of an aircraft and aircraft-related systems/equipment is achieved. However, in isolation, a standards-based approach may not provide a complete basis for certification of an aircraft, or approval of aircraft-related systems/equipment having an effect on aviation safety. Many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft or systems design features are likely to pose novel hazards, which are not catered for within the standard. As a result, in addition to compliance with design standards, DASA requires the conduct of a system safety program for aircraft designs.

5.2.5.7 System safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aviation safety hazards during the design process, and provide a

Superseded

management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

5.2.5.8 DASA prescribes supplementation to recognised Codes within a framework of 'essential' and 'recommended' design requirements. While essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. DASA, in consultation with the relevant capability manager where applicable, may approve an alternative design requirement in the following circumstances:

1. where analysis confirms the alternative design requirement achieves an equivalent level of safety
2. where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety or
3. where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

Interpreting design requirements

5.2.5.9 Like other MAAs, DASA accepts that tailoring of design requirements may be necessary to achieve essential military capability. Provided DASA concludes the proposed tailoring is judicious (i.e. that the tailoring represents good judgement or sense) in the ADF operational context, DASA may approve tailoring to the prescribed requirement. Certification or approval against the tailored requirement(s) would then be pursued by the applicant. Any proposed tailoring of design requirements by an applicant for type certification and/or design approval from DASA, which results in changes to prescribed safety criteria, must be supported by documented rationale that includes:

1. the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists
2. the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative
3. the applicant's characterisation of the delta between the prescribed standard and the tailored standard
4. the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta and
5. the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft or aircraft-related system/equipment, contextualised for ADF operations.

5.2.5.10 Agreed tailoring, including any essential risk controls to achieve the defined level of safety, will usually be documented in a Military Certification Review Item (MCRI) or equivalent approved by DASA. Detailed MCRI guidance is contained in Section 7.2 Certification.

5.2.5.11 DASA may have two separate roles in the above process. First, as the repository of standards and certification expertise, DASA may advise the capability manager and applicant on how to wisely complete each step. Secondly, DASA needs to gain sufficient confidence in the conduct of the process to assure the Defence AA that the tailoring is indeed judicious. If this second role cannot be achieved, the tailoring of the prescribed requirement(s) cannot be approved and consequently certification or approval of the design would be precluded.

Superseded

5.2.5.12 DASA also provides interpretation advice and direction on the intent and meaning of airworthiness design requirements, often but not exclusively related to:

1. the approval of tailored means of compliance for a design requirement
2. advice on the relevance of proposed design requirements to the design under consideration
3. advice on pragmatic tailoring of design requirements/standards.

5.2.5.13 The prescription and interpretation of design requirements and standards may be delegated to a Standards-Delegate of the Safety Authority (Standards-DoSA). The functions and responsibilities of DoSAs are detailed in Section 4.3.

Design requirements and WHS

5.2.5.14 Defence aircraft and aircraft-related systems/equipment can present a hazard to aircrew, other aircraft occupants, other airspace users, persons near or under the aircraft flight path, and maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

1. the aircraft design can promote a safe airborne workplace for aircrew and other occupants through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. improving crash survivability for aircraft occupants
    iii. implementing design controls for in-aircraft hazards that might injure aircraft occupants
    iv. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants
2. the aircraft design can promote the safety of persons near or under the aircraft flight path through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. reducing the ground impact energy (mainly relevant to uncrewed aircraft)
3. the aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:
    i. implementing design controls for aircraft hazards that might injure ground personnel
    ii. implementing design controls for aircraft hazards that might affect the future health of ground personnel
    iii. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

Superseded

5.2.5.15 Importantly, DASA approval of prescribed design requirements for a Defence aircraft or aircraft-related systems/equipment, and proposed tailoring, does not constitute endorsement/ agreement of the determination that risk has been eliminated or otherwise minimised SFARP. Rather, this must remain a decision for the capability manager (or delegate), as does the enduring management of the residual risk due to the tailoring/alternative standard.

Defence Aviation Safety Design Requirements Manual

5.2.5.16 The Defence Aviation Safety Design Requirements Manual (DASDRM) is DASA's repository for recognised Codes, and associated prescribed supplementary design requirements, with respect to Defence aircraft and aviation support systems/equipment design.

5.2.5.17 The DASDRM prescribes design requirements for aircraft systems and functions, and aircraft support systems and equipment that have an effect on aviation safety, that are necessary to achieve safe flight in Defence's proposed Configuration, Role and Environment (CRE). It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

5.2.5.18 While capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight, robust design for capability and interoperability contributes to mission success, and therefore the safety of the crew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate.

5.2.5.19 The DASDRM comprises the following six sections:

1. Section 1 – Application of Airworthiness Design Requirements. This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.
2. Section 2 – Integrated Design Requirements. This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.
3. Section 3 – Aircraft System Design Requirements. This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.
4. Section 4 – Uncrewed Aircraft Design Requirements. This section prescribes airworthiness design requirements for UAS.
5. Section 5 – Aircraft Support Systems. This section prescribes design requirements for non-aircraft systems and ground based equipment, where the systems/equipment

Superseded

have a direct effect on safe flight or aviation safety, such as aeronautical life support equipment, mission planning systems and aerial delivery.

6. Section 6 - Aerodrome Design Requirements. This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

5.2.6 Formal Regulatory Advice

Introduction

5.2.6.1 DASA may provide formal regulatory advice on any Defence Aviation Safety policy within its remit in order to assist with understanding and compliance. This section provides guidance on seeking such advice. Other queries, such as those concerning DASA business matters, availability of training, staff duties, contact details and updates to ongoing activities do not warrant a formal process and may be addressed through normal lines of communication.

When to make a formal request

5.2.6.2 Only certain types of queries warrant the application of a formal process. Such queries fall into the following broad categories:

1. requesting interpretation of DASR or other policy:
   i. where the intent is unclear
   ii. relating to a situation not explicitly covered by existing policy.
2. requesting advice regarding implementation of DASR or other policy, such as:
   i. whether a particular approach is compliant
   ii. applicability of policy to a particular activity.

Before making a formal request

5.2.6.3 DASA publishes a number of educational and promotional artefacts, which may answer a query without the need to request advice. See Section 5.2.4 *Regulatory supporting information* and the *Education and Promotion* page on the DASA web site.

5.2.6.4 The DASP Policy and Guidance Portal (PGP) contains a functional search engine that may assist in searching for specific terminology or phrases. Tips for navigation and searching are contained within the PGP User Guide.

How to make a formal request

5.2.6.5 If formal regulatory advice is required, the preferred method to request advice is via a DASR Query Form (DQF). In the case of uncertainty as to whether a DQF is suitable, email dasa.dasr@defence.gov.au.

5.2.6.6 While an email or phone call directly to a desk officer may seem more efficient, it does not always result in appropriate DASA registration and oversight. Registration informs DASA which areas of policy may require review or additional educational material and builds traceability for future updates. Oversight of queries is important for managing and prioritising DASA workload and ensures that advice follows an appropriate approval process before release. Therefore, DASA reserves the right to redirect any query to written form.

Superseded

Turnaround Times

5.2.6.7 DASA will negotiate and agree upon a turnaround time with the query initiator as the first action following receipt of a query. DASA will communicate any subsequent changes to that timeline to all involved parties when they become apparent.

5.3 Aviation Safety Authorisations

5.3.1 Purpose

5.3.1.1 The DASR make provision for DASA to issue a range of 'authorisations' if assured that the regulated community has met, and continues to meet, the requirements and constraints of the DASR. These authorisations may be in the form of certificates, permits, approvals or licenses.

5.3.1.2 This chapter presents an overview of each common aviation safety authorisation.

5.3.2 Aviation Safety Authorisations

5.3.2.1 DASA-issued authorisations can broadly be characterised as pertaining to organisations, products and/or personnel. These authorisations are as follows:

1. organisational authorisations:
    - i. Military Air Operator (MAO)
    - ii. Aerodrome Operator (ADOPR)
    - iii. Air Cargo Delivery Service Provider (ACDSP)
    - iv. Air Navigation Service Provider (ANSP)
    - v. Air Battle Management Operator (ABMO)
    - vi. Military Design Organisation (MDO)
    - vii. Military Production Organisation (MPO)
    - viii. Approved Maintenance Organisation (AMO)
    - ix. Continuing Airworthiness Management Organisation (CAMO)
    - x. Maintenance Training Organisation (MTO)
    - xi. Military Type Certificate Holder (MTCH) (currently an implicit approval)
2. product authorisations:
    - i. Military Type Certificate (MTC)
    - ii. Military Restricted Type Certificate (MRTC)
    - iii. Military Supplemental Type Certificate (MSTC)
    - iv. Military Permit to Fly (MPTF)
    - v. Military Certificate of Airworthiness (CoA)
    - vi. Military Restricted Certificate of Airworthiness (RCoA)

Superseded

vii. Australian Military Technical Standard Order (AUSMTSO)

viii. Approval of Repair Design

ix. Airworthiness Directive (AD)

x. Aircraft Maintenance Programme (AMP)

xi. Uncrewed Aircraft System Operating Permit (UASOP)

xii. Aerodrome Certificate (ADC)

xiii. Other[1]

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: DASA directly authorises certain management personnel within approved organisations. These are commonly referred to as 'Form 4 authorisations', since they are approved on DASA Form 4, Acceptance of Nominated Management Personnel. In the context of this chapter, those authorisations are considered to be part of the organisational approval process, so they are not listed separately here.

5.3.2.2 The type and scope of authorisations needed for a particular aircraft, aerodrome or air navigation service will depend on a range of factors, for example the involvement of other civil or military Aviation Authorities, the support arrangements implemented by Defence, and so on. These issues are explored elsewhere in this Manual.

5.3.2.3 Annexes A to X individually examine the authorisations listed in paragraph 3. Each annex explains the purpose of the authorisation, the relevant DASR requirements, applying for the authorisation, the responsibilities of the authorisation holder, and DASA's approach to compliance assurance.

Annexes:

(a) Military Air Operator

(b) Aerodrome Operator

(c) Air Cargo Delivery Service Provider (To be issued)

(d) Air Navigation Service Provider (To be issued)

(e) Military Design Organisation

(f) Military Production Organisation

(g) Approved Maintenance Organisation

(h) Continuing Airworthiness Management Organisation

(i) Maintenance Training Organisation

(j) Military Type Certificate Holder

Superseded

(k) Military Type Certificate

(l) Military Restricted Type Certificate (To be issued)

(m) Military Supplemental Type Certificate

(n) Military Permit to Fly

(o) Military Certificate of Airworthiness

(p) Military Restricted Certificate of Airworthiness (To be issued)

(q) Australian Military Technical Standard Order

(r) Approval of Repair Design

(s) Airworthiness Directive (To be issued)

(t) Aircraft Maintenance Programme

(u) Uncrewed Aircraft System Operating Permit

(v) Aerodrome Certificate

(w) Military Aircraft Maintenance Licence

(x) Air Battle Management Operator (To be issued)

5.4 Oversight and enforcement

5.4.1 Introduction

5.4.1.1 This section expands on the Oversight and Enforcement (O&E) policy described in section 4.1.4. Specifically, it explains how regulated entities can expect to be engaged by DASA in assessing initial and ongoing compliance.

5.4.1.2 **Regulated entity.** The term 'regulated entity' is used to describe the different organisations and personnel within the Aviation Safety community that are regulated under DASR, and who are subsequently oversighted by DASA. These entities are typically awarded DASA-issued authorisations, as listed in section DASPMAN Vol 3 Chapter 5.3.2 Aviation Safety Authorisations.

5.4.2 DASA O&E-related responsibilities

5.4.2.1 The DASA regulatory facing directorates accountable for O&E functions are DAVNOPS, DIA and DCA. The remit of each is detailed below:

1. **DAVNOPS.** DAVNOPS responsibilities include:

   i. conducting regulatory compliance assessments of organisations to enable the issuing of:

      – a Military Air Operator Certificate (MAOC) and corresponding Operational Specification (OpSpec) under DASR.ARO

      – an Air Navigation Service Provider Certificate (ANSPC) and Service Provision Conditions (SPC) under DASR.ANSP

Superseded

- an Aerodrome Operator Certificate (ADOPRC) and Aerodrome Operator Specification (ADOpSpec) under DASR 139
- an Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Cargo Delivery Operational Specification (ACDOpSpec) under DASR ACD
- an Air Battle Management Operator Certificate (ABMOC) and Operational Specification (OpSpec) under DASR ABM

ii. conducting oversight to allow the retention of existing organisation authorisations.

2. **DIA.** DIA responsibilities include:

i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

- a Military Type Certificate Holder (MTCH) organisation approval and the corresponding platform Type Certificate under DASR Part 21 Subpart B
- a Design Organisation Approval (DOA) for engineering design services under DASR Part 21 Subpart J.
- a Design Production Organisation Approval (POA) for parts production services under DASR Part 21 Subpart G or DASR Part 21 Subpart F.

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

3. **DCA.** DCA responsibilities include:

i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

- DASR Part M Continuing Airworthiness Management Organisations (CAMO) authorisations
- DASR Part 145 Maintenance Organisation (DASR 145 MO) authorisations
- DASR Part 147 Aircraft Maintenance Training Organisation (DASR 145 AMTO) authorisations
- DASR Part 66 Military Aircraft Maintenance Licences (DASR 66 MAML)

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

5.4.3 Initial authorisation process

5.4.3.1 To gain an initial authorisation, the applicant:

1. organisation must demonstrate:

Superseded

i. a Defence need for the award of the authorisation

ii. a local documented management system that complies with DASR requirements for the proposed scope and level of activities, as defined by their organisation approval basis (ie the set of documents which provides the objective quality evidence necessary to prove compliance with the relevant DASR)

2. Nominated Management Personnel must demonstrate:

i. a Defence need for the award of the authorisation

ii. compliance with specific qualification, training and experience requirements.

5.4.3.2 **Application.** An application for initial authorisation is made on the relevant DASR form, in a manner established by DASA within the respective DASR. Each form describes the information to be included to demonstrate compliance, how the form is to be submitted and who to. Where the DASR does not prescribe a format or manner for the application, the applicant should contact the relevant DASA Directorate for guidance.

5.4.3.3 **Initial DASA assessment.** The process by which DASA assesses applications varies between organisations and Nominated Management Personnel. For organisations, the assessment process begins with a desk top audit of the organisation's relevant documentation (i.e. evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable'—see below). For Nominated Management Personnel, DASA assesses compliance with specific qualification, training, and experience requirements.

5.4.3.4 If the applicant is found to be deficient in required content or non-compliant with any relevant DASR requirement, DASA will endeavour to request additional information where practicable. Post assessment the outcome of the application will be notified to the organisation as:

1. progressed to the next stage

2. rejected, providing reasons

3. conditionally progressed, with actions taken by DASA and the applicant to ensure non-compliances are resolved.

5.4.3.5 **On-site DASA assessment.** An on-site assessment is not an essential part of the initial authorisation process for any DASR authorisation and will be dependent on the nature of the request. DASA will determine if there is a need to conduct an on-site assessment, based on the outcome of the initial assessment, and the scope, level, and complexity of the application. Where conducted, the on-site assessment may include inspection of physical facilities and additional documents, and further face-to-face discussion with applicant staff (for additional 'Present', 'Suitable' and 'Operating' evidence—see below).

5.4.3.6 **DASA Organisational Approval.** Following the initial assessment and, if conducted, on-site assessment, the DASA team will provide a recommendation for authorisation to the DASA assessment lead. Where appropriate, an authorisation package will be compiled for DG DASA approval. Once approved, authorisation artefacts are dispatched to the applicant at which point the applicant may utilise privileges granted, noting any limitations.

5.4.3.7 **Timeline.** DASA timelines for the assessment and approval of authorisation applications will depend on the scope and complexity of the authorisation sought, and the level of DASA involvement to support the applicant through the process. DASA will endeavour to collaborate with applicants and

Superseded

action authorisation requests in a timely manner. Approvals may be expedited based on operational or safety imperatives and negotiated accordingly.

5.4.3.8 **Post approval.** The organisation and Nominated Management Personnel transition from the 'initial authorisation' phase to ongoing DASA oversight to retain their authorisation. The applicant is responsible for maintaining ongoing compliance with the relevant DASR and rectifying any future internally identified non-compliances through their own Quality Management System.

5.4.4 Authorisation change and retention process

5.4.4.1 **Changes to authorisations**. Should a regulated entity identify a need for authorisation scope/limitations/privilege changes, the entity must apply to DASA (except where otherwise permitted by DASR). Applications for changes to authorisations are made on a form and in a manner established by DASA within the respective DASR, as per their initial authorisation. In actioning the application, DASA will follow the same process as for initial authorisations, adjusting the scope and extent of the assessment to suit the nature of the change. The organisation and Nominated Management Personnel must not implement the proposed change until DASA has issued updated authorisations (except where otherwise permitted by DASR and previously agreed by DASA).

5.4.4.2 **Retention of authorisation.** DASA authorisations remain extant provided regulated entities retain a Defence need and continue to comply with respective DASR. Once the initial authorisation is awarded, ongoing DASA surveillance and oversight of authorisation holders commences. A key component of an effective regulatory framework is ensuring that regulated organisations have a clear understanding of when, why and how DASA will review ongoing compliance. DASA assures the validity of authorisations by applying an oversight cycle commensurate with the perceived risk to Aviation Safety (generally every 24 months). DASA's risk-based approach continually reviews safety intelligence collected from active and passive surveillance activities. Based on collected safety intelligence, DASA conducts oversight of authorisation holders, adjusting frequency and scope of oversight to suit the perceived risk.

5.4.5 PSOE for Regulatory Oversight

5.4.5.1 The DASP O&E policy is documented in section 4.1.4, and supports compliance with the DASR through application of a consistent O&E operating model. This section provides Defence tailoring of the civil PSOE model for broader DASR application; noting the PSOE model developed for ICAO Annex 19 is heavily oriented towards Management System maturity assessment vice broader regulation compliance. When considering the Defence aviation context it is important to understand the hazard-based nature of DASR and the regulated community's SFARP obligation in achieving an acceptable level of safety through a baseline level of compliance.

5.4.5.2 Within this context, DASA will execute oversight activities of a regulated entity using the following Defence-tailored PSOE definitions:

1. **'Present' (P).** There is evidence that the process, behavior and technology indicators required for DASR compliance are clearly visible and documented within the organisation's systems.

2. **'Suitable' (S).** There is evidence the process, behavior and technology indicators are suitable (i.e. regulatory compliant) for the size, nature, context, complexity of the organisation and its services, and the Aviation Safety hazard expected to be mitigated (including consideration of industry expectation for standards, codes, guidance etc).

Superseded

3. **'Operating' (O).** There is evidence that the process, behavior and technology indicators are in use and an output is being produced.

4. **'Effective' (E).** There is evidence that the process outputs , behavior and technology indicators are effective in achieving the desired DASR Aviation Safety hazard control outcome.

    i. Note, effectiveness assessments represent an evolution in compliance methodology, beyond traditional compliance/conformance assessments. In executing an effectiveness assessment, a thorough understanding of the applicable regulation's aviation safety hazard is required, to ascertain if the process outputs are effectively preventing realisation of that hazard (based on evidence collected during an oversight activity).

5.4.5.3 Where non-compliances or potential problems are identified through PSOE application enforcement action will be taken against the organisation.

5.4.6 Management of DASA Findings

5.4.6.1 Findings are issued to highlight an actual or potential non-compliance against DASR. All findings are supported by objective quality evidence and contain adequate detail to support the finding.

5.4.6.2 A Finding will only be issued to remedy an identified non-compliance to a specific regulatory outcome. Once Findings are issued, the regulated entity is responsible for identifying immediate actions, root causes, developing a corrective action plan and implementing corrective actions to address the non-compliance.

5.4.6.3 **Finding levels.** DASA issues Level 1, 2 and 3 findings, as follows:

1. **Level 1.** Any non-compliance with DASR requirements which lowers the safety standard and seriously hazards flight safety.

2. **Level 2.** Any non-compliance with DASR requirements which lowers the safety standard and possibly hazards flight safety.

3. **Level 3.** Any non-compliance with DASR requirements, or potential problem, that could lower the safety standard and possibly hazards flight safety.

5.4.6.4 **DASA Level 1 and 2 Findings.** Once a DASA Finding is issued to an organisation, DASA will monitor that actions required to address non-compliances or potential non-compliances are managed and tracked until closure of the Finding. The DASA Level 1 and 2 Findings lifecycle has six distinct stages for regulated organisations, defined on DASR Form 1299 as follows:

1. **Organisational acceptance of Finding.** Organisations accept the Finding based on a DASA assessment of the evidence, and respond with proposed dates for the completion of their Immediate Actions and development of their Corrective Action Plan. DASA will assess the response and agree to timeframes, or consult for revised dates.

2. Where organisations does not agree with the DASA Findings issued, they must formally write to DASA, providing objective evidence as to why the Finding is inappropriate. DASA will assess the additional evidence and respond.

Superseded

3. **Implementation of Immediate Actions.** Organisations implement short-term solutions to contain the non-compliance and manage the associated risk mitigated SFARP. DASA will use DASR Form 1299 to assess the organisation's actions and document acceptance, or request rework as appropriate.

4. **Root cause analysis.** Organisations assess the root causes of the non-compliance. Multiple root cause analysis tools are available to organisations, including the '5-Whys', Bow Tie, Ishikawa diagrams, Apollo Reality Charting, and Tree Diagram. Importantly, there is never just one root cause to a non-compliance, and 'human error' is never a valid conclusion.

5. DASR Form 1299 provides (as a non-compulsory use tool) a '5-Whys' template against which a root cause analysis can be conducted. DASA will use DASR Form 1299 to assess the organisation's analysis and document acceptance, or request rework as appropriate.

6. **Development of the Corrective Action Plan.** Organisations identify a corrective action for each root cause identified, to prevent recurrence. For each corrective action, the organisation defines:

    i. a means by which the effectiveness of the corrective action to prevent reoccurrence will be assessed

    ii. the objective quality evidence required to substantiate corrective action effectiveness

    iii. a lead person for its implementation, and for reporting implementation and substantiation status

    iv. the due date for corrective action completion, cognisant of the need to validate the effectiveness of the corrective action prior to closure

    v. any justification supporting the completion date choice (e.g. time to collect validation evidence, or co-dependency/secondary effects).

7. DASR Form 1299 provides a Corrective Action Plan template. DASA will use the form to assess the organisation's plan and document acceptance, or request rework as appropriate.

8. **Implementation of Corrective Actions.** Organisations implement the DASA-agreed corrective actions, progressively submitting each completed Corrective Action to DASA for consideration on DASR Form 1299. DASA will track and manage the progress of approved Corrective Action Plans so that a Finding will not fall overdue unless an individual Corrective Action due date has passed.

9. DASA will use the DASR Form 1299 to assess the organisation's assessment and document acceptance, or request rework as appropriate.

10. **Finding closure.** Once DASA is satisfied that the organisation has implemented and validated the effectiveness of all actions that address the non-compliance, DASA will close the Finding and notify the organisation.

5.4.6.5 **Findings Requiring Re-work.** Where DASA assesses issues with the quality of the response provided by an organisation in developing/implementing Immediate Actions, Root Cause Analysis, Corrective Action Plan or Corrective Actions it will be returned to the organisation for re-work. In doing so, DASA will provide the necessary details of the cause for re-work for further organisational

Superseded

consideration and action. As part of the re-work process the organisation will generally be required to consider if a Finding Extension is required based upon the impact of the quality issue relative to the extant hazard retention. Where extension to originally agreed submission timelines is necessary the criteria under 5.4.6.6 will be required.

5.4.6.6 **DASA Level 3 Findings.** Level 3 Findings are notified to the organisation through DASA correspondence (usually an initial authorisation notification or an oversight report). Level 3 Findings are expected to be managed to closure under the organisation's QMS. DASA will review Level 3 Finding progress during subsequent O&E activities. Inaction against a Level 3 finding does not automatically equate to a Level 2 Finding being issued. However, it may serve as evidence that, when coupled with other safety intelligence, may lead to issue of a Level 2 Finding.

5.4.6.7 **DASA Findings extensions.** An organisation can request an extension (usually through email to the respective Desk Officer) at any stage in the Findings management process. However, as the organisation owns the Aviation Safety risk associated with the Finding until DASA Finding closure, DASA will only consider these requests based on an assessment of the Finding's residual risk being mitigated SFARP. Evidence expected to be provided in an extension request should include:

1. the reason further time is required to complete actions,
2. details of what has already been completed against Findings root causes and agreed Corrective Actions,
3. what outstanding Corrective Actions remain and their revised dates for completion, and
4. justification of how residual aviation safety risk will be controlled SFARP until Corrective Action completion.

5.4.6.8 DASA assesses all extension requests in accordance with the DASA Enforcement Principles at section 4.1.4 and notifies organisations of the outcome. However, organisations should not assume automatic extension approval.

5.5 Education and training

(Reserved)

Superseded

5.2. Aviation Safety Policy and Guidance

5.1 Introduction

(Reserved)

5.2. Aviation Safety Policy and Guidance

5.2.1 Introduction

5.2.1.1 This section describes the hierarchy of policy and guidance within the Defence Aviation Safety Program.

5.2.2 The DASP Manual

5.2.2.1 The DASP Manual is the central policy and guidance document within the DASP. It is issued by the Defence AA in three volumes:

1. Volume 1 *Requirements for the DASP* expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:
    i. legal and governance arrangements
    ii. independent safety assurance
    iii. the Defence Aviation Safety Regulation
    iv. the independent investigation of accidents and incidents
    v. independent reviews of Aviation Safety.
2. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.
3. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

5.2.3 Defence Aviation Safety Regulation

5.2.3.1 The DASR are contained within DASP Manual Volume 2. Their structure and naming convention are based on those applied by CASA and EASA.

5.2.3.2 The DASR comprise:

Superseded

1. **General Requirements,** which define the scope and applicability of the DASR parts as well as establish requirements and provisions that are applicable to a significant proportion of regulated entities.

2. **DASR parts,** which are outcome based and specify requirements for each of the specifically regulated Aviation Safety topics. They may include associated supporting information in the form of Acceptable Means of Compliance (AMC) and Guidance Material (GM).

5.2.4 Regulatory Supporting Information

5.2.4.1 The AMC and GM embedded within the DASR are part of a broader range of supporting information published by DASA to promote understanding of, and compliance with, the regulations. All such supporting information is authoritative and does not mandate any action but may address regulatory requirements and provisions established elsewhere.

5.2.4.2 **Acceptable Means of Compliance.** AMC provides a generic and widely applicable approach to meeting the respective DASR requirements. DASA publishes AMC to provide certainty as to how the required safety outcomes may be achieved. Choosing to implement an AMC relieves the regulated entity of the burden of proving that the means of compliance achieves the intended safety outcome. The regulated entity demonstrates compliance with the DASR by appropriately implementing AMC. Regulated entities are free to propose Alternative Means of Compliance (AltMoC); however, the nature of Aviation Safety regulation means that the use of AltMoC may not be suitable in every instance.

5.2.4.3 **Guidance Material.** GM helps to illustrate the meaning of a requirement or provision in the DASR. It may provide relevant background, context or an explanation of the policy intent underpinning the respective regulation.

5.2.4.4 **Advisory Circulars.** Advisory Circulars (ACs) are typically issued to bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as AMC in the DASR. Examples include information regarding emerging Aviation Safety matters, information that enhances compliance understanding for existing regulation, or policy guidance for aviation issues that are not yet regulated but require further understanding.

5.2.4.5 **Factsheets.** Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

5.2.5 Design Requirements

5.2.5.1 Volume 1 of the DASP Manual requires DASA to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. DASA fulfils this responsibility through prescribing and interpreting the minimum requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

Prescribing design requirements

Superseded

5.2.5.2 DASA employs three foundational principles when prescribing design requirements for aviation safety:

1. DASA recognises the design requirements prescribed by several CAAs and MAAs as providing a sound foundation for the safe design of Defence aircraft and aircraft-related systems and equipment
2. DASA may prescribe supplementation to these design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment
3. DASA requires the conduct of a system safety program, to provide a robust means for identifying and analysing aviation hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

5.2.5.3 To provide assurance that safe flight is achieved through aircraft design, many CAAs/MAAs prescribe airworthiness design requirements, which are usually documented in an 'Airworthiness Code' (DASR 21.A.16A refers). An Airworthiness Code is a complete and consistent suite of design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. As the development and maintenance of an Airworthiness Code is a substantial undertaking, rather than define and publish its own Code, DASA recognises Airworthiness Codes prescribed by other CAAs/MAAs (i.e. DASA accepts that these Codes provide a safe foundation for aircraft and aircraft-related systems design).

5.2.5.4 DASA may recognise an Airworthiness Code when the Code as a minimum:

1. is prescribed by a recognised CAA/MAA
2. has demonstrated a sound safety record
3. prescribes a complete and consistent suite of airworthiness design requirements
4. is supported by associated guidance on how to achieve compliance with the airworthiness design requirements
5. is accessible, i.e. published by the CAA/MAA in a consolidated and easily accessed format.

5.2.5.5 While aircraft and aircraft-related systems/equipment designs developed to a DASA recognised Airworthiness Code should substantially meet the level of safety expected by Defence, supplementary airworthiness design requirements may need to be prescribed by DASA as a result of:

1. known inadequacies in the Code
2. novel features included in the proposed design that are not accommodated by the Code
3. proposed Defence-unique roles and/or operating environments that are outside the scope of the Code and/or
4. Defence policies or Australian legislated requirements not being covered by the Code.

5.2.5.6 Compliance with DASA-recognised Codes and prescribed supplementation is the principal means by which safe design of an aircraft and aircraft-related systems/equipment is achieved. However, in isolation, a standards-based approach may not provide a complete basis for certification of an aircraft, or approval of aircraft-related systems/equipment having an effect on aviation safety.

Superseded

Many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft or systems design features are likely to pose novel hazards, which are not catered for within the standard. As a result, in addition to compliance with design standards, DASA requires the conduct of a system safety program for aircraft designs.

5.2.5.7 System safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aviation safety hazards during the design process, and provide a management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

5.2.5.8 DASA prescribes supplementation to recognised Codes within a framework of 'essential' and 'recommended' design requirements. While essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. DASA, in consultation with the relevant capability manager where applicable, may approve an alternative design requirement in the following circumstances:

1. where analysis confirms the alternative design requirement achieves an equivalent level of safety
2. where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety or
3. where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

Interpreting design requirements

5.2.5.9 Like other MAAs, DASA accepts that tailoring of design requirements may be necessary to achieve essential military capability. Provided DASA concludes the proposed tailoring is judicious (i.e. that the tailoring represents good judgement or sense) in the ADF operational context, DASA may approve tailoring to the prescribed requirement. Certification or approval against the tailored requirement(s) would then be pursued by the applicant. Any proposed tailoring of design requirements by an applicant for type certification and/or design approval from DASA, which results in changes to prescribed safety criteria, must be supported by documented rationale that includes:

1. the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists
2. the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative
3. the applicant's characterisation of the delta between the prescribed standard and the tailored standard
4. the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta and
5. the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft or aircraft-related system/equipment, contextualised for ADF operations.

Superseded

5.2.5.10 Agreed tailoring, including any essential risk controls to achieve the defined level of safety, will usually be documented in a Military Certification Review Item (MCRI) or equivalent approved by DASA. Detailed MCRI guidance is contained in Section 7.2 Certification.

5.2.5.11 DASA may have two separate roles in the above process. First, as the repository of standards and certification expertise, DASA may advise the capability manager and applicant on how to wisely complete each step. Secondly, DASA needs to gain sufficient confidence in the conduct of the process to assure the Defence AA that the tailoring is indeed judicious. If this second role cannot be achieved, the tailoring of the prescribed requirement(s) cannot be approved and consequently certification or approval of the design would be precluded.

5.2.5.12 DASA also provides interpretation advice and direction on the intent and meaning of airworthiness design requirements, often but not exclusively related to:

1. the approval of tailored means of compliance for a design requirement
2. advice on the relevance of proposed design requirements to the design under consideration
3. advice on pragmatic tailoring of design requirements/standards.

5.2.5.13 The prescription and interpretation of design requirements and standards may be delegated to a Standards-Delegate of the Safety Authority (Standards-DoSA). The functions and responsibilities of DoSAs are detailed in Section 4.3.

Design requirements and WHS

5.2.5.14 Defence aircraft and aircraft-related systems/equipment can present a hazard to aircrew, other aircraft occupants, other airspace users, persons near or under the aircraft flight path, and maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

1. the aircraft design can promote a safe airborne workplace for aircrew and other occupants through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. improving crash survivability for aircraft occupants
    iii. implementing design controls for in-aircraft hazards that might injure aircraft occupants
    iv. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants
2. the aircraft design can promote the safety of persons near or under the aircraft flight path through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. reducing the ground impact energy (mainly relevant to uncrewed aircraft)
3. the aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:

Superseded

i. implementing design controls for aircraft hazards that might injure ground personnel

ii. implementing design controls for aircraft hazards that might affect the future health of ground personnel

iii. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

5.2.5.15 Importantly, DASA approval of prescribed design requirements for a Defence aircraft or aircraft-related systems/equipment, and proposed tailoring, does not constitute endorsement/ agreement of the determination that risk has been eliminated or otherwise minimised SFARP. Rather, this must remain a decision for the capability manager (or delegate), as does the enduring management of the residual risk due to the tailoring/alternative standard.

Defence Aviation Safety Design Requirements Manual

5.2.5.16 The Defence Aviation Safety Design Requirements Manual (DASDRM) is DASA's repository for recognised Codes, and associated prescribed supplementary design requirements, with respect to Defence aircraft and aviation support systems/equipment design.

5.2.5.17 The DASDRM prescribes design requirements for aircraft systems and functions, and aircraft support systems and equipment that have an effect on aviation safety, that are necessary to achieve safe flight in Defence's proposed Configuration, Role and Environment (CRE). It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

5.2.5.18 While capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight, robust design for capability and interoperability contributes to mission success, and therefore the safety of the crew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate.

5.2.5.19 The DASDRM comprises the following six sections:

1. Section 1 – Application of Airworthiness Design Requirements. This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.

2. Section 2 – Integrated Design Requirements. This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.

3. Section 3 – Aircraft System Design Requirements. This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems

Superseded

included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.

4. Section 4 – Uncrewed Aircraft Design Requirements. This section prescribes airworthiness design requirements for UAS.

5. Section 5 – Aircraft Support Systems. This section prescribes design requirements for non-aircraft systems and ground based equipment, where the systems/equipment have a direct effect on safe flight or aviation safety, such as aeronautical life support equipment, mission planning systems and aerial delivery.

6. Section 6 - Aerodrome Design Requirements. This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

5.2.6 Formal Regulatory Advice

Introduction

5.2.6.1 DASA may provide formal regulatory advice on any Defence Aviation Safety policy within its remit in order to assist with understanding and compliance. This section provides guidance on seeking such advice. Other queries, such as those concerning DASA business matters, availability of training, staff duties, contact details and updates to ongoing activities do not warrant a formal process and may be addressed through normal lines of communication.

When to make a formal request

5.2.6.2 Only certain types of queries warrant the application of a formal process. Such queries fall into the following broad categories:

1. requesting interpretation of DASR or other policy:
   i. where the intent is unclear
   ii. relating to a situation not explicitly covered by existing policy.
2. requesting advice regarding implementation of DASR or other policy, such as:
   i. whether a particular approach is compliant
   ii. applicability of policy to a particular activity.

Before making a formal request

5.2.6.3 DASA publishes a number of educational and promotional artefacts, which may answer a query without the need to request advice. See Section 5.2.4 *Regulatory supporting information* and the *Education and Promotion* page on the DASA web site.

5.2.6.4 The DASP Policy and Guidance Portal (PGP) contains a functional search engine that may assist in searching for specific terminology or phrases. Tips for navigation and searching are contained within the PGP User Guide.

How to make a formal request

Superseded

5.2.6.5 If formal regulatory advice is required, the preferred method to request advice is via a DASR Query Form (DQF). In the case of uncertainty as to whether a DQF is suitable, email dasa.dasr@defence.gov.au.

5.2.6.6 While an email or phone call directly to a desk officer may seem more efficient, it does not always result in appropriate DASA registration and oversight. Registration informs DASA which areas of policy may require review or additional educational material and builds traceability for future updates. Oversight of queries is important for managing and prioritising DASA workload and ensures that advice follows an appropriate approval process before release. Therefore, DASA reserves the right to redirect any query to written form.

Turnaround Times

5.2.6.7 DASA will negotiate and agree upon a turnaround time with the query initiator as the first action following receipt of a query. DASA will communicate any subsequent changes to that timeline to all involved parties when they become apparent.

5.3 Aviation Safety Authorisations

5.3.1 Purpose

5.3.1.1 The DASR make provision for DASA to issue a range of 'authorisations' if assured that the regulated community has met, and continues to meet, the requirements and constraints of the DASR. These authorisations may be in the form of certificates, permits, approvals or licenses.

5.3.1.2 This chapter presents an overview of each common aviation safety authorisation.

5.3.2 Aviation Safety Authorisations

5.3.2.1 DASA-issued authorisations can broadly be characterised as pertaining to organisations, products and/or personnel. These authorisations are as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Aerodrome Operator (ADOPR)
    iii. Air Cargo Delivery Service Provider (ACDSP)
    iv. Air Navigation Service Provider (ANSP)
    v. Air Battle Management Operator (ABMO)
    vi. Military Design Organisation (MDO)
    vii. Military Production Organisation (MPO)
    viii. Approved Maintenance Organisation (AMO)
    ix. Continuing Airworthiness Management Organisation (CAMO)
    x. Maintenance Training Organisation (MTO)

Superseded

xi. Military Type Certificate Holder (MTCH) (currently an implicit approval)

2. product authorisations:

i. Military Type Certificate (MTC)

ii. Military Restricted Type Certificate (MRTC)

iii. Military Supplemental Type Certificate (MSTC)

iv. Military Permit to Fly (MPTF)

v. Military Certificate of Airworthiness (CoA)

vi. Military Restricted Certificate of Airworthiness (RCoA)

vii. Australian Military Technical Standard Order (AUSMTSO)

viii. Approval of Repair Design

ix. Airworthiness Directive (AD)

x. Aircraft Maintenance Programme (AMP)

xi. Uncrewed Aircraft System Operating Permit (UASOP)

xii. Aerodrome Certificate (ADC)

xiii. Other[1]

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: DASA directly authorises certain management personnel within approved organisations. These are commonly referred to as 'Form 4 authorisations', since they are approved on DASA Form 4, Acceptance of Nominated Management Personnel. In the context of this chapter, those authorisations are considered to be part of the organisational approval process, so they are not listed separately here.

5.3.2.2 The type and scope of authorisations needed for a particular aircraft, aerodrome or air navigation service will depend on a range of factors, for example the involvement of other civil or military Aviation Authorities, the support arrangements implemented by Defence, and so on. These issues are explored elsewhere in this Manual.

5.3.2.3 Annexes A to X individually examine the authorisations listed in paragraph 3. Each annex explains the purpose of the authorisation, the relevant DASR requirements, applying for the authorisation, the responsibilities of the authorisation holder, and DASA's approach to compliance assurance.

Superseded

Annexes:

(a) Military Air Operator

(b) Aerodrome Operator

(c) Air Cargo Delivery Service Provider (To be issued)

(d) Air Navigation Service Provider (To be issued)

(e) Military Design Organisation

(f) Military Production Organisation

(g) Approved Maintenance Organisation

(h) Continuing Airworthiness Management Organisation

(i) Maintenance Training Organisation

(j) Military Type Certificate Holder

(k) Military Type Certificate

(l) Military Restricted Type Certificate (To be issued)

(m) Military Supplemental Type Certificate

(n) Military Permit to Fly

(o) Military Certificate of Airworthiness

(p) Military Restricted Certificate of Airworthiness (To be issued)

(q) Australian Military Technical Standard Order

(r) Approval of Repair Design

(s) Airworthiness Directive (To be issued)

(t) Aircraft Maintenance Programme

(u) Uncrewed Aircraft System Operating Permit

(v) Aerodrome Certificate

(w) Military Aircraft Maintenance Licence

(x) Air Battle Management Operator (To be issued)

5.4.1 Introduction

5.4.1.1 This section expands on the Oversight and Enforcement (O&E) policy described in section 4.1.4. Specifically, it explains how regulated entities can expect to be engaged by DASA in assessing initial and ongoing compliance.

5.4.1.2 **Regulated entity.** The term 'regulated entity' is used to describe the different organisations and personnel within the Aviation Safety community that are regulated under DASR, and who are subsequently oversighted by DASA. These entities are typically awarded DASA-issued authorisations, as listed in section DASPMAN Vol 3 Chapter 5.3.2 Aviation Safety Authorisations.

Superseded

5.4.2 DASA O&E-related responsibilities

5.4.2.1 The DASA regulatory facing directorates accountable for O&E functions are DAVNOPS, DIA and DCA. The remit of each is detailed below:

1. **DAVNOPS.** DAVNOPS responsibilities include:
    i. conducting regulatory compliance assessments of organisations to enable the issuing of:
        – a Military Air Operator Certificate (MAOC) and corresponding Operational Specification (OpSpec) under DASR.ARO
        – an Air Navigation Service Provider Certificate (ANSPC) and Service Provision Conditions (SPC) under DASR.ANSP
        – an Aerodrome Operator Certificate (ADOPRC) and Aerodrome Operator Specification (ADOpSpec) under DASR 139
        – an Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Cargo Delivery Operational Specification (ACDOpSpec) under DASR ACD
        – an Air Battle Management Operator Certificate (ABMOC) and Operational Specification (OpSpec) under DASR ABM
    ii. conducting oversight to allow the retention of existing organisation authorisations.
2. **DIA.** DIA responsibilities include:
    i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:
        – a Military Type Certificate Holder (MTCH) organisation approval and the corresponding platform Type Certificate under DASR Part 21 Subpart B
        – a Design Organisation Approval (DOA) for engineering design services under DASR Part 21 Subpart J.
        – a Design Production Organisation Approval (POA) for parts production services under DASR Part 21 Subpart G or DASR Part 21 Subpart F.
    ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.
3. **DCA.** DCA responsibilities include:
    i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:
        – DASR Part M Continuing Airworthiness Management Organisations (CAMO) authorisations
        – DASR Part 145 Maintenance Organisation (DASR 145 MO) authorisations

Superseded

– DASR Part 147 Aircraft Maintenance Training Organisation (DASR 145 AMTO) authorisations

– DASR Part 66 Military Aircraft Maintenance Licences (DASR 66 MAML)

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

5.4.3 Initial authorisation process

5.4.3.1 To gain an initial authorisation, the applicant:

1. organisation must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. a local documented management system that complies with DASR requirements for the proposed scope and level of activities, as defined by their organisation approval basis (ie the set of documents which provides the objective quality evidence necessary to prove compliance with the relevant DASR)

2. Nominated Management Personnel must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. compliance with specific qualification, training and experience requirements.

5.4.3.2 **Application.** An application for initial authorisation is made on the relevant DASR form, in a manner established by DASA within the respective DASR. Each form describes the information to be included to demonstrate compliance, how the form is to be submitted and who to. Where the DASR does not prescribe a format or manner for the application, the applicant should contact the relevant DASA Directorate for guidance.

5.4.3.3 **Initial DASA assessment.** The process by which DASA assesses applications varies between organisations and Nominated Management Personnel. For organisations, the assessment process begins with a desk top audit of the organisation's relevant documentation (i.e. evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable'—see below). For Nominated Management Personnel, DASA assesses compliance with specific qualification, training, and experience requirements.

5.4.3.4 If the applicant is found to be deficient in required content or non-compliant with any relevant DASR requirement, DASA will endeavour to request additional information where practicable. Post assessment the outcome of the application will be notified to the organisation as:

1. progressed to the next stage

2. rejected, providing reasons

3. conditionally progressed, with actions taken by DASA and the applicant to ensure non-compliances are resolved.

Superseded

5.4.3.5 **On-site DASA assessment.** An on-site assessment is not an essential part of the initial authorisation process for any DASR authorisation and will be dependent on the nature of the request. DASA will determine if there is a need to conduct an on-site assessment, based on the outcome of the initial assessment, and the scope, level, and complexity of the application. Where conducted, the on-site assessment may include inspection of physical facilities and additional documents, and further face-to-face discussion with applicant staff (for additional 'Present', 'Suitable' and 'Operating' evidence—see below).

5.4.3.6 **DASA Organisational Approval.** Following the initial assessment and, if conducted, on-site assessment, the DASA team will provide a recommendation for authorisation to the DASA assessment lead. Where appropriate, an authorisation package will be compiled for DG DASA approval. Once approved, authorisation artefacts are dispatched to the applicant at which point the applicant may utilise privileges granted, noting any limitations.

5.4.3.7 **Timeline.** DASA timelines for the assessment and approval of authorisation applications will depend on the scope and complexity of the authorisation sought, and the level of DASA involvement to support the applicant through the process. DASA will endeavour to collaborate with applicants and action authorisation requests in a timely manner. Approvals may be expedited based on operational or safety imperatives and negotiated accordingly.

5.4.3.8 **Post approval.** The organisation and Nominated Management Personnel transition from the 'initial authorisation' phase to ongoing DASA oversight to retain their authorisation. The applicant is responsible for maintaining ongoing compliance with the relevant DASR and rectifying any future internally identified non-compliances through their own Quality Management System.

5.4.4 Authorisation change and retention process

5.4.4.1 **Changes to authorisations**. Should a regulated entity identify a need for authorisation scope/limitations/privilege changes, the entity must apply to DASA (except where otherwise permitted by DASR). Applications for changes to authorisations are made on a form and in a manner established by DASA within the respective DASR, as per their initial authorisation. In actioning the application, DASA will follow the same process as for initial authorisations, adjusting the scope and extent of the assessment to suit the nature of the change. The organisation and Nominated Management Personnel must not implement the proposed change until DASA has issued updated authorisations (except where otherwise permitted by DASR and previously agreed by DASA).

5.4.4.2 **Retention of authorisation.** DASA authorisations remain extant provided regulated entities retain a Defence need and continue to comply with respective DASR. Once the initial authorisation is awarded, ongoing DASA surveillance and oversight of authorisation holders commences. A key component of an effective regulatory framework is ensuring that regulated organisations have a clear understanding of when, why and how DASA will review ongoing compliance. DASA assures the validity of authorisations by applying an oversight cycle commensurate with the perceived risk to Aviation Safety (generally every 24 months). DASA's risk-based approach continually reviews safety intelligence collected from active and passive surveillance activities. Based on collected safety intelligence, DASA conducts oversight of authorisation holders, adjusting frequency and scope of oversight to suit the perceived risk.

Superseded

5.4.5 PSOE for Regulatory Oversight

5.4.5.1 The DASP O&E policy is documented in section 4.1.4, and supports compliance with the DASR through application of a consistent O&E operating model. This section provides Defence tailoring of the civil PSOE model for broader DASR application; noting the PSOE model developed for ICAO Annex 19 is heavily oriented towards Management System maturity assessment vice broader regulation compliance. When considering the Defence aviation context it is important to understand the hazard-based nature of DASR and the regulated community's SFARP obligation in achieving an acceptable level of safety through a baseline level of compliance.

5.4.5.2 Within this context, DASA will execute oversight activities of a regulated entity using the following Defence-tailored PSOE definitions:

1. **'Present' (P).** There is evidence that the process, behavior and technology indicators required for DASR compliance are clearly visible and documented within the organisation's systems.

2. **'Suitable' (S).** There is evidence the process, behavior and technology indicators are suitable (i.e. regulatory compliant) for the size, nature, context, complexity of the organisation and its services, and the Aviation Safety hazard expected to be mitigated (including consideration of industry expectation for standards, codes, guidance etc).

3. **'Operating' (O).** There is evidence that the process, behavior and technology indicators are in use and an output is being produced.

4. **'Effective' (E).** There is evidence that the process outputs , behavior and technology indicators are effective in achieving the desired DASR Aviation Safety hazard control outcome.

    i. Note, effectiveness assessments represent an evolution in compliance methodology, beyond traditional compliance/conformance assessments. In executing an effectiveness assessment, a thorough understanding of the applicable regulation's aviation safety hazard is required, to ascertain if the process outputs are effectively preventing realisation of that hazard (based on evidence collected during an oversight activity).

5.4.5.3 Where non-compliances or potential problems are identified through PSOE application enforcement action will be taken against the organisation.

5.4.6 Management of DASA Findings

5.4.6.1 Findings are issued to highlight an actual or potential non-compliance against DASR. All findings are supported by objective quality evidence and contain adequate detail to support the finding.

5.4.6.2 A Finding will only be issued to remedy an identified non-compliance to a specific regulatory outcome. Once Findings are issued, the regulated entity is responsible for identifying immediate actions, root causes, developing a corrective action plan and implementing corrective actions to address the non-compliance.

5.4.6.3 **Finding levels.** DASA issues Level 1, 2 and 3 findings, as follows:

Superseded

1. **Level 1.** Any non-compliance with DASR requirements which lowers the safety standard and seriously hazards flight safety.

2. **Level 2.** Any non-compliance with DASR requirements which lowers the safety standard and possibly hazards flight safety.

3. **Level 3.** Any non-compliance with DASR requirements, or potential problem, that could lower the safety standard and possibly hazards flight safety.

5.4.6.4 **DASA Level 1 and 2 Findings.** Once a DASA Finding is issued to an organisation, DASA will monitor that actions required to address non-compliances or potential non-compliances are managed and tracked until closure of the Finding. The DASA Level 1 and 2 Findings lifecycle has six distinct stages for regulated organisations, defined on DASR Form 1299 as follows:

1. **Organisational acceptance of Finding.** Organisations accept the Finding based on a DASA assessment of the evidence, and respond with proposed dates for the completion of their Immediate Actions and development of their Corrective Action Plan. DASA will assess the response and agree to timeframes, or consult for revised dates.

2. Where organisations does not agree with the DASA Findings issued, they must formally write to DASA, providing objective evidence as to why the Finding is inappropriate. DASA will assess the additional evidence and respond.

3. **Implementation of Immediate Actions.** Organisations implement short-term solutions to contain the non-compliance and manage the associated risk mitigated SFARP. DASA will use DASR Form 1299 to assess the organisation's actions and document acceptance, or request rework as appropriate.

4. **Root cause analysis.** Organisations assess the root causes of the non-compliance. Multiple root cause analysis tools are available to organisations, including the '5-Whys', Bow Tie, Ishikawa diagrams, Apollo Reality Charting, and Tree Diagram. Importantly, there is never just one root cause to a non-compliance, and 'human error' is never a valid conclusion.

5. DASR Form 1299 provides (as a non-compulsory use tool) a '5-Whys' template against which a root cause analysis can be conducted. DASA will use DASR Form 1299 to assess the organisation's analysis and document acceptance, or request rework as appropriate.

6. **Development of the Corrective Action Plan.** Organisations identify a corrective action for each root cause identified, to prevent recurrence. For each corrective action, the organisation defines:

    i. a means by which the effectiveness of the corrective action to prevent reoccurrence will be assessed

    ii. the objective quality evidence required to substantiate corrective action effectiveness

    iii. a lead person for its implementation, and for reporting implementation and substantiation status

    iv. the due date for corrective action completion, cognisant of the need to validate the effectiveness of the corrective action prior to closure

Superseded

v. any justification supporting the completion date choice (e.g. time to collect validation evidence, or co-dependency/secondary effects).

7. DASR Form 1299 provides a Corrective Action Plan template. DASA will use the form to assess the organisation's plan and document acceptance, or request rework as appropriate.

8. **Implementation of Corrective Actions.** Organisations implement the DASA-agreed corrective actions, progressively submitting each completed Corrective Action to DASA for consideration on DASR Form 1299. DASA will track and manage the progress of approved Corrective Action Plans so that a Finding will not fall overdue unless an individual Corrective Action due date has passed.

9. DASA will use the DASR Form 1299 to assess the organisation's assessment and document acceptance, or request rework as appropriate.

10. **Finding closure.** Once DASA is satisfied that the organisation has implemented and validated the effectiveness of all actions that address the non-compliance, DASA will close the Finding and notify the organisation.

5.4.6.5 **Findings Requiring Re-work.** Where DASA assesses issues with the quality of the response provided by an organisation in developing/implementing Immediate Actions, Root Cause Analysis, Corrective Action Plan or Corrective Actions it will be returned to the organisation for re-work. In doing so, DASA will provide the necessary details of the cause for re-work for further organisational consideration and action. As part of the re-work process the organisation will generally be required to consider if a Finding Extension is required based upon the impact of the quality issue relative to the extant hazard retention. Where extension to originally agreed submission timelines is necessary the criteria under 5.4.6.6 will be required.

5.4.6.6 **DASA Level 3 Findings.** Level 3 Findings are notified to the organisation through DASA correspondence (usually an initial authorisation notification or an oversight report). Level 3 Findings are expected to be managed to closure under the organisation's QMS. DASA will review Level 3 Finding progress during subsequent O&E activities. Inaction against a Level 3 finding does not automatically equate to a Level 2 Finding being issued. However, it may serve as evidence that, when coupled with other safety intelligence, may lead to issue of a Level 2 Finding.

5.4.6.7 **DASA Findings extensions.** An organisation can request an extension (usually through email to the respective Desk Officer) at any stage in the Findings management process. However, as the organisation owns the Aviation Safety risk associated with the Finding until DASA Finding closure, DASA will only consider these requests based on an assessment of the Finding's residual risk being mitigated SFARP. Evidence expected to be provided in an extension request should include:

1. the reason further time is required to complete actions,

2. details of what has already been completed against Findings root causes and agreed Corrective Actions,

3. what outstanding Corrective Actions remain and their revised dates for completion, and

4. justification of how residual aviation safety risk will be controlled SFARP until Corrective Action completion.

Superseded

5.4.6.8 DASA assesses all extension requests in accordance with the DASA Enforcement Principles at section 4.1.4 and notifies organisations of the outcome. However, organisations should not assume automatic extension approval.

5.5 Education and training

(Reserved)

Superseded

5.3. Aviation Safety Authorisations

5.1 Introduction

(Reserved)

5.2. Aviation Safety Policy and Guidance

5.2.1 Introduction

5.2.1.1 This section describes the hierarchy of policy and guidance within the Defence Aviation Safety Program.

5.2.2 The DASP Manual

5.2.2.1 The DASP Manual is the central policy and guidance document within the DASP. It is issued by the Defence AA in three volumes:

1. Volume 1 *Requirements for the DASP* expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:
    i. legal and governance arrangements
    ii. independent safety assurance
    iii. the Defence Aviation Safety Regulation
    iv. the independent investigation of accidents and incidents
    v. independent reviews of Aviation Safety.
2. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.
3. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

5.2.3 Defence Aviation Safety Regulation

5.2.3.1 The DASR are contained within DASP Manual Volume 2. Their structure and naming convention are based on those applied by CASA and EASA.

5.2.3.2 The DASR comprise:

Superseded

1. **General Requirements,** which define the scope and applicability of the DASR parts as well as establish requirements and provisions that are applicable to a significant proportion of regulated entities.

2. **DASR parts,** which are outcome based and specify requirements for each of the specifically regulated Aviation Safety topics. They may include associated supporting information in the form of Acceptable Means of Compliance (AMC) and Guidance Material (GM).

5.2.4 Regulatory Supporting Information

5.2.4.1 The AMC and GM embedded within the DASR are part of a broader range of supporting information published by DASA to promote understanding of, and compliance with, the regulations. All such supporting information is authoritative and does not mandate any action but may address regulatory requirements and provisions established elsewhere.

5.2.4.2 **Acceptable Means of Compliance.** AMC provides a generic and widely applicable approach to meeting the respective DASR requirements. DASA publishes AMC to provide certainty as to how the required safety outcomes may be achieved. Choosing to implement an AMC relieves the regulated entity of the burden of proving that the means of compliance achieves the intended safety outcome. The regulated entity demonstrates compliance with the DASR by appropriately implementing AMC. Regulated entities are free to propose Alternative Means of Compliance (AltMoC); however, the nature of Aviation Safety regulation means that the use of AltMoC may not be suitable in every instance.

5.2.4.3 **Guidance Material.** GM helps to illustrate the meaning of a requirement or provision in the DASR. It may provide relevant background, context or an explanation of the policy intent underpinning the respective regulation.

5.2.4.4 **Advisory Circulars.** Advisory Circulars (ACs) are typically issued to bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as AMC in the DASR. Examples include information regarding emerging Aviation Safety matters, information that enhances compliance understanding for existing regulation, or policy guidance for aviation issues that are not yet regulated but require further understanding.

5.2.4.5 **Factsheets.** Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

5.2.5 Design Requirements

5.2.5.1 Volume 1 of the DASP Manual requires DASA to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. DASA fulfils this responsibility through prescribing and interpreting the minimum requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

Prescribing design requirements

Superseded

5.2.5.2 DASA employs three foundational principles when prescribing design requirements for aviation safety:

1. DASA recognises the design requirements prescribed by several CAAs and MAAs as providing a sound foundation for the safe design of Defence aircraft and aircraft-related systems and equipment
2. DASA may prescribe supplementation to these design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment
3. DASA requires the conduct of a system safety program, to provide a robust means for identifying and analysing aviation hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

5.2.5.3 To provide assurance that safe flight is achieved through aircraft design, many CAAs/MAAs prescribe airworthiness design requirements, which are usually documented in an 'Airworthiness Code' (DASR 21.A.16A refers). An Airworthiness Code is a complete and consistent suite of design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. As the development and maintenance of an Airworthiness Code is a substantial undertaking, rather than define and publish its own Code, DASA recognises Airworthiness Codes prescribed by other CAAs/MAAs (i.e. DASA accepts that these Codes provide a safe foundation for aircraft and aircraft-related systems design).

5.2.5.4 DASA may recognise an Airworthiness Code when the Code as a minimum:

1. is prescribed by a recognised CAA/MAA
2. has demonstrated a sound safety record
3. prescribes a complete and consistent suite of airworthiness design requirements
4. is supported by associated guidance on how to achieve compliance with the airworthiness design requirements
5. is accessible, i.e. published by the CAA/MAA in a consolidated and easily accessed format.

5.2.5.5 While aircraft and aircraft-related systems/equipment designs developed to a DASA recognised Airworthiness Code should substantially meet the level of safety expected by Defence, supplementary airworthiness design requirements may need to be prescribed by DASA as a result of:

1. known inadequacies in the Code
2. novel features included in the proposed design that are not accommodated by the Code
3. proposed Defence-unique roles and/or operating environments that are outside the scope of the Code and/or
4. Defence policies or Australian legislated requirements not being covered by the Code.

5.2.5.6 Compliance with DASA-recognised Codes and prescribed supplementation is the principal means by which safe design of an aircraft and aircraft-related systems/equipment is achieved. However, in isolation, a standards-based approach may not provide a complete basis for certification of an aircraft, or approval of aircraft-related systems/equipment having an effect on aviation safety.

Superseded

Many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft or systems design features are likely to pose novel hazards, which are not catered for within the standard. As a result, in addition to compliance with design standards, DASA requires the conduct of a system safety program for aircraft designs.

5.2.5.7 System safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aviation safety hazards during the design process, and provide a management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

5.2.5.8 DASA prescribes supplementation to recognised Codes within a framework of 'essential' and 'recommended' design requirements. While essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. DASA, in consultation with the relevant capability manager where applicable, may approve an alternative design requirement in the following circumstances:

1. where analysis confirms the alternative design requirement achieves an equivalent level of safety
2. where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety or
3. where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

Interpreting design requirements

5.2.5.9 Like other MAAs, DASA accepts that tailoring of design requirements may be necessary to achieve essential military capability. Provided DASA concludes the proposed tailoring is judicious (i.e. that the tailoring represents good judgement or sense) in the ADF operational context, DASA may approve tailoring to the prescribed requirement. Certification or approval against the tailored requirement(s) would then be pursued by the applicant. Any proposed tailoring of design requirements by an applicant for type certification and/or design approval from DASA, which results in changes to prescribed safety criteria, must be supported by documented rationale that includes:

1. the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists
2. the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative
3. the applicant's characterisation of the delta between the prescribed standard and the tailored standard
4. the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta and
5. the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft or aircraft-related system/equipment, contextualised for ADF operations.

Superseded

5.2.5.10 Agreed tailoring, including any essential risk controls to achieve the defined level of safety, will usually be documented in a Military Certification Review Item (MCRI) or equivalent approved by DASA. Detailed MCRI guidance is contained in Section 7.2 Certification.

5.2.5.11 DASA may have two separate roles in the above process. First, as the repository of standards and certification expertise, DASA may advise the capability manager and applicant on how to wisely complete each step. Secondly, DASA needs to gain sufficient confidence in the conduct of the process to assure the Defence AA that the tailoring is indeed judicious. If this second role cannot be achieved, the tailoring of the prescribed requirement(s) cannot be approved and consequently certification or approval of the design would be precluded.

5.2.5.12 DASA also provides interpretation advice and direction on the intent and meaning of airworthiness design requirements, often but not exclusively related to:

1. the approval of tailored means of compliance for a design requirement
2. advice on the relevance of proposed design requirements to the design under consideration
3. advice on pragmatic tailoring of design requirements/standards.

5.2.5.13 The prescription and interpretation of design requirements and standards may be delegated to a Standards-Delegate of the Safety Authority (Standards-DoSA). The functions and responsibilities of DoSAs are detailed in Section 4.3.

Design requirements and WHS

5.2.5.14 Defence aircraft and aircraft-related systems/equipment can present a hazard to aircrew, other aircraft occupants, other airspace users, persons near or under the aircraft flight path, and maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

1. the aircraft design can promote a safe airborne workplace for aircrew and other occupants through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. improving crash survivability for aircraft occupants
    iii. implementing design controls for in-aircraft hazards that might injure aircraft occupants
    iv. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants
2. the aircraft design can promote the safety of persons near or under the aircraft flight path through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. reducing the ground impact energy (mainly relevant to uncrewed aircraft)
3. the aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:

Superseded

i. implementing design controls for aircraft hazards that might injure ground personnel

ii. implementing design controls for aircraft hazards that might affect the future health of ground personnel

iii. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

5.2.5.15 Importantly, DASA approval of prescribed design requirements for a Defence aircraft or aircraft-related systems/equipment, and proposed tailoring, does not constitute endorsement/ agreement of the determination that risk has been eliminated or otherwise minimised SFARP. Rather, this must remain a decision for the capability manager (or delegate), as does the enduring management of the residual risk due to the tailoring/alternative standard.

Defence Aviation Safety Design Requirements Manual

5.2.5.16 The Defence Aviation Safety Design Requirements Manual (DASDRM) is DASA's repository for recognised Codes, and associated prescribed supplementary design requirements, with respect to Defence aircraft and aviation support systems/equipment design.

5.2.5.17 The DASDRM prescribes design requirements for aircraft systems and functions, and aircraft support systems and equipment that have an effect on aviation safety, that are necessary to achieve safe flight in Defence's proposed Configuration, Role and Environment (CRE). It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

5.2.5.18 While capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight, robust design for capability and interoperability contributes to mission success, and therefore the safety of the crew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate.

5.2.5.19 The DASDRM comprises the following six sections:

1. Section 1 – Application of Airworthiness Design Requirements. This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.

2. Section 2 – Integrated Design Requirements. This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.

3. Section 3 – Aircraft System Design Requirements. This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems

Superseded

included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.

4. Section 4 – Uncrewed Aircraft Design Requirements. This section prescribes airworthiness design requirements for UAS.

5. Section 5 – Aircraft Support Systems. This section prescribes design requirements for non-aircraft systems and ground based equipment, where the systems/equipment have a direct effect on safe flight or aviation safety, such as aeronautical life support equipment, mission planning systems and aerial delivery.

6. Section 6 - Aerodrome Design Requirements. This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

5.2.6 Formal Regulatory Advice

Introduction

5.2.6.1 DASA may provide formal regulatory advice on any Defence Aviation Safety policy within its remit in order to assist with understanding and compliance. This section provides guidance on seeking such advice. Other queries, such as those concerning DASA business matters, availability of training, staff duties, contact details and updates to ongoing activities do not warrant a formal process and may be addressed through normal lines of communication.

When to make a formal request

5.2.6.2 Only certain types of queries warrant the application of a formal process. Such queries fall into the following broad categories:

1. requesting interpretation of DASR or other policy:
    i. where the intent is unclear
    ii. relating to a situation not explicitly covered by existing policy.
2. requesting advice regarding implementation of DASR or other policy, such as:
    i. whether a particular approach is compliant
    ii. applicability of policy to a particular activity.

Before making a formal request

5.2.6.3 DASA publishes a number of educational and promotional artefacts, which may answer a query without the need to request advice. See Section 5.2.4 *Regulatory supporting information* and the *Education and Promotion* page on the DASA web site.

5.2.6.4 The DASP Policy and Guidance Portal (PGP) contains a functional search engine that may assist in searching for specific terminology or phrases. Tips for navigation and searching are contained within the PGP User Guide.

How to make a formal request

Superseded

5.2.6.5 If formal regulatory advice is required, the preferred method to request advice is via a DASR Query Form (DQF). In the case of uncertainty as to whether a DQF is suitable, email dasa.dasr@defence.gov.au.

5.2.6.6 While an email or phone call directly to a desk officer may seem more efficient, it does not always result in appropriate DASA registration and oversight. Registration informs DASA which areas of policy may require review or additional educational material and builds traceability for future updates. Oversight of queries is important for managing and prioritising DASA workload and ensures that advice follows an appropriate approval process before release. Therefore, DASA reserves the right to redirect any query to written form.

Turnaround Times

5.2.6.7 DASA will negotiate and agree upon a turnaround time with the query initiator as the first action following receipt of a query. DASA will communicate any subsequent changes to that timeline to all involved parties when they become apparent.

5.3 Aviation Safety Authorisations

5.3.1 Purpose

5.3.1.1 The DASR make provision for DASA to issue a range of 'authorisations' if assured that the regulated community has met, and continues to meet, the requirements and constraints of the DASR. These authorisations may be in the form of certificates, permits, approvals or licenses.

5.3.1.2 This chapter presents an overview of each common aviation safety authorisation.

5.3.2 Aviation Safety Authorisations

5.3.2.1 DASA-issued authorisations can broadly be characterised as pertaining to organisations, products and/or personnel. These authorisations are as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Aerodrome Operator (ADOPR)
    iii. Air Cargo Delivery Service Provider (ACDSP)
    iv. Air Navigation Service Provider (ANSP)
    v. Air Battle Management Operator (ABMO)
    vi. Military Design Organisation (MDO)
    vii. Military Production Organisation (MPO)
    viii. Approved Maintenance Organisation (AMO)
    ix. Continuing Airworthiness Management Organisation (CAMO)
    x. Maintenance Training Organisation (MTO)

Superseded

xi. Military Type Certificate Holder (MTCH) (currently an implicit approval)

2. product authorisations:

i. Military Type Certificate (MTC)

ii. Military Restricted Type Certificate (MRTC)

iii. Military Supplemental Type Certificate (MSTC)

iv. Military Permit to Fly (MPTF)

v. Military Certificate of Airworthiness (CoA)

vi. Military Restricted Certificate of Airworthiness (RCoA)

vii. Australian Military Technical Standard Order (AUSMTSO)

viii. Approval of Repair Design

ix. Airworthiness Directive (AD)

x. Aircraft Maintenance Programme (AMP)

xi. Uncrewed Aircraft System Operating Permit (UASOP)

xii. Aerodrome Certificate (ADC)

xiii. Other[1]

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: DASA directly authorises certain management personnel within approved organisations. These are commonly referred to as 'Form 4 authorisations', since they are approved on DASA Form 4, Acceptance of Nominated Management Personnel. In the context of this chapter, those authorisations are considered to be part of the organisational approval process, so they are not listed separately here.

5.3.2.2 The type and scope of authorisations needed for a particular aircraft, aerodrome or air navigation service will depend on a range of factors, for example the involvement of other civil or military Aviation Authorities, the support arrangements implemented by Defence, and so on. These issues are explored elsewhere in this Manual.

5.3.2.3 Annexes A to X individually examine the authorisations listed in paragraph 3. Each annex explains the purpose of the authorisation, the relevant DASR requirements, applying for the authorisation, the responsibilities of the authorisation holder, and DASA's approach to compliance assurance.

Annexes:

(a) Military Air Operator

(b) Aerodrome Operator

Superseded

(c) Air Cargo Delivery Service Provider (To be issued)

(d) Air Navigation Service Provider (To be issued)

(e) Military Design Organisation

(f) Military Production Organisation

(g) Approved Maintenance Organisation

(h) Continuing Airworthiness Management Organisation

(i) Maintenance Training Organisation

(j) Military Type Certificate Holder

(k) Military Type Certificate

(l) Military Restricted Type Certificate (To be issued)

(m) Military Supplemental Type Certificate

(n) Military Permit to Fly

(o) Military Certificate of Airworthiness

(p) Military Restricted Certificate of Airworthiness (To be issued)

(q) Australian Military Technical Standard Order

(r) Approval of Repair Design

(s) Airworthiness Directive (To be issued)

(t) Aircraft Maintenance Programme

(u) Uncrewed Aircraft System Operating Permit

(v) Aerodrome Certificate

(w) Military Aircraft Maintenance Licence

(x) Air Battle Management Operator (To be issued)

5.4.1 Introduction

5.4.1.1 This section expands on the Oversight and Enforcement (O&E) policy described in section 4.1.4. Specifically, it explains how regulated entities can expect to be engaged by DASA in assessing initial and ongoing compliance.

5.4.1.2 **Regulated entity.** The term 'regulated entity' is used to describe the different organisations and personnel within the Aviation Safety community that are regulated under DASR, and who are subsequently oversighted by DASA. These entities are typically awarded DASA-issued authorisations, as listed in section DASPMAN Vol 3 Chapter 5.3.2 Aviation Safety Authorisations.

Superseded

5.4.2 DASA O&E-related responsibilities

5.4.2.1 The DASA regulatory facing directorates accountable for O&E functions are DAVNOPS, DIA and DCA. The remit of each is detailed below:

1. **DAVNOPS.** DAVNOPS responsibilities include:
   - i. conducting regulatory compliance assessments of organisations to enable the issuing of:
     - a Military Air Operator Certificate (MAOC) and corresponding Operational Specification (OpSpec) under DASR.ARO
     - an Air Navigation Service Provider Certificate (ANSPC) and Service Provision Conditions (SPC) under DASR.ANSP
     - an Aerodrome Operator Certificate (ADOPRC) and Aerodrome Operator Specification (ADOpSpec) under DASR 139
     - an Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Cargo Delivery Operational Specification (ACDOpSpec) under DASR ACD
     - an Air Battle Management Operator Certificate (ABMOC) and Operational Specification (OpSpec) under DASR ABM
   - ii. conducting oversight to allow the retention of existing organisation authorisations.
2. **DIA.** DIA responsibilities include:
   - i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:
     - a Military Type Certificate Holder (MTCH) organisation approval and the corresponding platform Type Certificate under DASR Part 21 Subpart B
     - a Design Organisation Approval (DOA) for engineering design services under DASR Part 21 Subpart J.
     - a Design Production Organisation Approval (POA) for parts production services under DASR Part 21 Subpart G or DASR Part 21 Subpart F.
   - ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.
3. **DCA.** DCA responsibilities include:
   - i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:
     - DASR Part M Continuing Airworthiness Management Organisations (CAMO) authorisations
     - DASR Part 145 Maintenance Organisation (DASR 145 MO) authorisations

Superseded

– DASR Part 147 Aircraft Maintenance Training Organisation (DASR 145 AMTO) authorisations

– DASR Part 66 Military Aircraft Maintenance Licences (DASR 66 MAML)

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

5.4.3 Initial authorisation process

5.4.3.1 To gain an initial authorisation, the applicant:

1. organisation must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. a local documented management system that complies with DASR requirements for the proposed scope and level of activities, as defined by their organisation approval basis (ie the set of documents which provides the objective quality evidence necessary to prove compliance with the relevant DASR)

2. Nominated Management Personnel must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. compliance with specific qualification, training and experience requirements.

5.4.3.2 **Application.** An application for initial authorisation is made on the relevant DASR form, in a manner established by DASA within the respective DASR. Each form describes the information to be included to demonstrate compliance, how the form is to be submitted and who to. Where the DASR does not prescribe a format or manner for the application, the applicant should contact the relevant DASA Directorate for guidance.

5.4.3.3 **Initial DASA assessment.** The process by which DASA assesses applications varies between organisations and Nominated Management Personnel. For organisations, the assessment process begins with a desk top audit of the organisation's relevant documentation (i.e. evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable'—see below). For Nominated Management Personnel, DASA assesses compliance with specific qualification, training, and experience requirements.

5.4.3.4 If the applicant is found to be deficient in required content or non-compliant with any relevant DASR requirement, DASA will endeavour to request additional information where practicable. Post assessment the outcome of the application will be notified to the organisation as:

1. progressed to the next stage

2. rejected, providing reasons

3. conditionally progressed, with actions taken by DASA and the applicant to ensure non-compliances are resolved.

Superseded

5.4.3.5 **On-site DASA assessment.** An on-site assessment is not an essential part of the initial authorisation process for any DASR authorisation and will be dependent on the nature of the request. DASA will determine if there is a need to conduct an on-site assessment, based on the outcome of the initial assessment, and the scope, level, and complexity of the application. Where conducted, the on-site assessment may include inspection of physical facilities and additional documents, and further face-to-face discussion with applicant staff (for additional 'Present', 'Suitable' and 'Operating' evidence—see below).

5.4.3.6 **DASA Organisational Approval.** Following the initial assessment and, if conducted, on-site assessment, the DASA team will provide a recommendation for authorisation to the DASA assessment lead. Where appropriate, an authorisation package will be compiled for DG DASA approval. Once approved, authorisation artefacts are dispatched to the applicant at which point the applicant may utilise privileges granted, noting any limitations.

5.4.3.7 **Timeline.** DASA timelines for the assessment and approval of authorisation applications will depend on the scope and complexity of the authorisation sought, and the level of DASA involvement to support the applicant through the process. DASA will endeavour to collaborate with applicants and action authorisation requests in a timely manner. Approvals may be expedited based on operational or safety imperatives and negotiated accordingly.

5.4.3.8 **Post approval.** The organisation and Nominated Management Personnel transition from the 'initial authorisation' phase to ongoing DASA oversight to retain their authorisation. The applicant is responsible for maintaining ongoing compliance with the relevant DASR and rectifying any future internally identified non-compliances through their own Quality Management System.

5.4.4 Authorisation change and retention process

5.4.4.1 **Changes to authorisations**. Should a regulated entity identify a need for authorisation scope/limitations/privilege changes, the entity must apply to DASA (except where otherwise permitted by DASR). Applications for changes to authorisations are made on a form and in a manner established by DASA within the respective DASR, as per their initial authorisation. In actioning the application, DASA will follow the same process as for initial authorisations, adjusting the scope and extent of the assessment to suit the nature of the change. The organisation and Nominated Management Personnel must not implement the proposed change until DASA has issued updated authorisations (except where otherwise permitted by DASR and previously agreed by DASA).

5.4.4.2 **Retention of authorisation.** DASA authorisations remain extant provided regulated entities retain a Defence need and continue to comply with respective DASR. Once the initial authorisation is awarded, ongoing DASA surveillance and oversight of authorisation holders commences. A key component of an effective regulatory framework is ensuring that regulated organisations have a clear understanding of when, why and how DASA will review ongoing compliance. DASA assures the validity of authorisations by applying an oversight cycle commensurate with the perceived risk to Aviation Safety (generally every 24 months). DASA's risk-based approach continually reviews safety intelligence collected from active and passive surveillance activities. Based on collected safety intelligence, DASA conducts oversight of authorisation holders, adjusting frequency and scope of oversight to suit the perceived risk.

Superseded

5.4.5 PSOE for Regulatory Oversight

5.4.5.1 The DASP O&E policy is documented in section 4.1.4, and supports compliance with the DASR through application of a consistent O&E operating model. This section provides Defence tailoring of the civil PSOE model for broader DASR application; noting the PSOE model developed for ICAO Annex 19 is heavily oriented towards Management System maturity assessment vice broader regulation compliance. When considering the Defence aviation context it is important to understand the hazard-based nature of DASR and the regulated community's SFARP obligation in achieving an acceptable level of safety through a baseline level of compliance.

5.4.5.2 Within this context, DASA will execute oversight activities of a regulated entity using the following Defence-tailored PSOE definitions:

1. **'Present' (P).** There is evidence that the process, behavior and technology indicators required for DASR compliance are clearly visible and documented within the organisation's systems.

2. **'Suitable' (S).** There is evidence the process, behavior and technology indicators are suitable (i.e. regulatory compliant) for the size, nature, context, complexity of the organisation and its services, and the Aviation Safety hazard expected to be mitigated (including consideration of industry expectation for standards, codes, guidance etc).

3. **'Operating' (O).** There is evidence that the process, behavior and technology indicators are in use and an output is being produced.

4. **'Effective' (E).** There is evidence that the process outputs , behavior and technology indicators are effective in achieving the desired DASR Aviation Safety hazard control outcome.

    i. Note, effectiveness assessments represent an evolution in compliance methodology, beyond traditional compliance/conformance assessments. In executing an effectiveness assessment, a thorough understanding of the applicable regulation's aviation safety hazard is required, to ascertain if the process outputs are effectively preventing realisation of that hazard (based on evidence collected during an oversight activity).

5.4.5.3 Where non-compliances or potential problems are identified through PSOE application enforcement action will be taken against the organisation.

5.4.6 Management of DASA Findings

5.4.6.1 Findings are issued to highlight an actual or potential non-compliance against DASR. All findings are supported by objective quality evidence and contain adequate detail to support the finding.

5.4.6.2 A Finding will only be issued to remedy an identified non-compliance to a specific regulatory outcome. Once Findings are issued, the regulated entity is responsible for identifying immediate actions, root causes, developing a corrective action plan and implementing corrective actions to address the non-compliance.

5.4.6.3 **Finding levels.** DASA issues Level 1, 2 and 3 findings, as follows:

Superseded

1. **Level 1.** Any non-compliance with DASR requirements which lowers the safety standard and seriously hazards flight safety.

2. **Level 2.** Any non-compliance with DASR requirements which lowers the safety standard and possibly hazards flight safety.

3. **Level 3.** Any non-compliance with DASR requirements, or potential problem, that could lower the safety standard and possibly hazards flight safety.

5.4.6.4 **DASA Level 1 and 2 Findings.** Once a DASA Finding is issued to an organisation, DASA will monitor that actions required to address non-compliances or potential non-compliances are managed and tracked until closure of the Finding. The DASA Level 1 and 2 Findings lifecycle has six distinct stages for regulated organisations, defined on DASR Form 1299 as follows:

1. **Organisational acceptance of Finding.** Organisations accept the Finding based on a DASA assessment of the evidence, and respond with proposed dates for the completion of their Immediate Actions and development of their Corrective Action Plan. DASA will assess the response and agree to timeframes, or consult for revised dates.

2. Where organisations does not agree with the DASA Findings issued, they must formally write to DASA, providing objective evidence as to why the Finding is inappropriate. DASA will assess the additional evidence and respond.

3. **Implementation of Immediate Actions.** Organisations implement short-term solutions to contain the non-compliance and manage the associated risk mitigated SFARP. DASA will use DASR Form 1299 to assess the organisation's actions and document acceptance, or request rework as appropriate.

4. **Root cause analysis.** Organisations assess the root causes of the non-compliance. Multiple root cause analysis tools are available to organisations, including the '5-Whys', Bow Tie, Ishikawa diagrams, Apollo Reality Charting, and Tree Diagram. Importantly, there is never just one root cause to a non-compliance, and 'human error' is never a valid conclusion.

5. DASR Form 1299 provides (as a non-compulsory use tool) a '5-Whys' template against which a root cause analysis can be conducted. DASA will use DASR Form 1299 to assess the organisation's analysis and document acceptance, or request rework as appropriate.

6. **Development of the Corrective Action Plan.** Organisations identify a corrective action for each root cause identified, to prevent recurrence. For each corrective action, the organisation defines:

    i. a means by which the effectiveness of the corrective action to prevent reoccurrence will be assessed

    ii. the objective quality evidence required to substantiate corrective action effectiveness

    iii. a lead person for its implementation, and for reporting implementation and substantiation status

    iv. the due date for corrective action completion, cognisant of the need to validate the effectiveness of the corrective action prior to closure

Superseded

v. any justification supporting the completion date choice (e.g. time to collect validation evidence, or co-dependency/secondary effects).

7. DASR Form 1299 provides a Corrective Action Plan template. DASA will use the form to assess the organisation's plan and document acceptance, or request rework as appropriate.

8. **Implementation of Corrective Actions.** Organisations implement the DASA-agreed corrective actions, progressively submitting each completed Corrective Action to DASA for consideration on DASR Form 1299. DASA will track and manage the progress of approved Corrective Action Plans so that a Finding will not fall overdue unless an individual Corrective Action due date has passed.

9. DASA will use the DASR Form 1299 to assess the organisation's assessment and document acceptance, or request rework as appropriate.

10. **Finding closure.** Once DASA is satisfied that the organisation has implemented and validated the effectiveness of all actions that address the non-compliance, DASA will close the Finding and notify the organisation.

5.4.6.5 **Findings Requiring Re-work.** Where DASA assesses issues with the quality of the response provided by an organisation in developing/implementing Immediate Actions, Root Cause Analysis, Corrective Action Plan or Corrective Actions it will be returned to the organisation for re-work. In doing so, DASA will provide the necessary details of the cause for re-work for further organisational consideration and action. As part of the re-work process the organisation will generally be required to consider if a Finding Extension is required based upon the impact of the quality issue relative to the extant hazard retention. Where extension to originally agreed submission timelines is necessary the criteria under 5.4.6.6 will be required.

5.4.6.6 **DASA Level 3 Findings.** Level 3 Findings are notified to the organisation through DASA correspondence (usually an initial authorisation notification or an oversight report). Level 3 Findings are expected to be managed to closure under the organisation's QMS. DASA will review Level 3 Finding progress during subsequent O&E activities. Inaction against a Level 3 finding does not automatically equate to a Level 2 Finding being issued. However, it may serve as evidence that, when coupled with other safety intelligence, may lead to issue of a Level 2 Finding.

5.4.6.7 **DASA Findings extensions.** An organisation can request an extension (usually through email to the respective Desk Officer) at any stage in the Findings management process. However, as the organisation owns the Aviation Safety risk associated with the Finding until DASA Finding closure, DASA will only consider these requests based on an assessment of the Finding's residual risk being mitigated SFARP. Evidence expected to be provided in an extension request should include:

1. the reason further time is required to complete actions,

2. details of what has already been completed against Findings root causes and agreed Corrective Actions,

3. what outstanding Corrective Actions remain and their revised dates for completion, and

4. justification of how residual aviation safety risk will be controlled SFARP until Corrective Action completion.

Superseded

5.4.6.8 DASA assesses all extension requests in accordance with the DASA Enforcement Principles at section 4.1.4 and notifies organisations of the outcome. However, organisations should not assume automatic extension approval.

5.5 Education and training

(Reserved)

Superseded

Annexes

5.1 Introduction

(Reserved)

5.2. Aviation Safety Policy and Guidance

5.2.1 Introduction

5.2.1.1 This section describes the hierarchy of policy and guidance within the Defence Aviation Safety Program.

5.2.2 The DASP Manual

5.2.2.1 The DASP Manual is the central policy and guidance document within the DASP. It is issued by the Defence AA in three volumes:

1. Volume 1 *Requirements for the DASP* expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:
    i. legal and governance arrangements
    ii. independent safety assurance
    iii. the Defence Aviation Safety Regulation
    iv. the independent investigation of accidents and incidents
    v. independent reviews of Aviation Safety.
2. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.
3. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

5.2.3 Defence Aviation Safety Regulation

5.2.3.1 The DASR are contained within DASP Manual Volume 2. Their structure and naming convention are based on those applied by CASA and EASA.

5.2.3.2 The DASR comprise:

1. **General Requirements,** which define the scope and applicability of the DASR parts as well as establish requirements and provisions that are applicable to a significant proportion of regulated entities.
2. **DASR parts,** which are outcome based and specify requirements for each of the specifically regulated Aviation Safety topics. They may include associated supporting

Superseded

information in the form of Acceptable Means of Compliance (AMC) and Guidance Material (GM).

5.2.4 Regulatory Supporting Information

5.2.4.1 The AMC and GM embedded within the DASR are part of a broader range of supporting information published by DASA to promote understanding of, and compliance with, the regulations. All such supporting information is authoritative and does not mandate any action but may address regulatory requirements and provisions established elsewhere.

5.2.4.2 **Acceptable Means of Compliance.** AMC provides a generic and widely applicable approach to meeting the respective DASR requirements. DASA publishes AMC to provide certainty as to how the required safety outcomes may be achieved. Choosing to implement an AMC relieves the regulated entity of the burden of proving that the means of compliance achieves the intended safety outcome. The regulated entity demonstrates compliance with the DASR by appropriately implementing AMC. Regulated entities are free to propose Alternative Means of Compliance (AltMoC); however, the nature of Aviation Safety regulation means that the use of AltMoC may not be suitable in every instance.

5.2.4.3 **Guidance Material.** GM helps to illustrate the meaning of a requirement or provision in the DASR. It may provide relevant background, context or an explanation of the policy intent underpinning the respective regulation.

5.2.4.4 **Advisory Circulars.** Advisory Circulars (ACs) are typically issued to bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as AMC in the DASR. Examples include information regarding emerging Aviation Safety matters, information that enhances compliance understanding for existing regulation, or policy guidance for aviation issues that are not yet regulated but require further understanding.

5.2.4.5 **Factsheets.** Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

5.2.5 Design Requirements

5.2.5.1 Volume 1 of the DASP Manual requires DASA to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. DASA fulfils this responsibility through prescribing and interpreting the minimum requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

Prescribing design requirements

5.2.5.2 DASA employs three foundational principles when prescribing design requirements for aviation safety:

1. DASA recognises the design requirements prescribed by several CAAs and MAAs as providing a sound foundation for the safe design of Defence aircraft and aircraft-related systems and equipment
2. DASA may prescribe supplementation to these design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment

Superseded

3. DASA requires the conduct of a system safety program, to provide a robust means for identifying and analysing aviation hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

5.2.5.3 To provide assurance that safe flight is achieved through aircraft design, many CAAs/MAAs prescribe airworthiness design requirements, which are usually documented in an 'Airworthiness Code' (DASR 21.A.16A refers). An Airworthiness Code is a complete and consistent suite of design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. As the development and maintenance of an Airworthiness Code is a substantial undertaking, rather than define and publish its own Code, DASA recognises Airworthiness Codes prescribed by other CAAs/MAAs (i.e. DASA accepts that these Codes provide a safe foundation for aircraft and aircraft-related systems design).

5.2.5.4 DASA may recognise an Airworthiness Code when the Code as a minimum:

1. is prescribed by a recognised CAA/MAA
2. has demonstrated a sound safety record
3. prescribes a complete and consistent suite of airworthiness design requirements
4. is supported by associated guidance on how to achieve compliance with the airworthiness design requirements
5. is accessible, i.e. published by the CAA/MAA in a consolidated and easily accessed format.

5.2.5.5 While aircraft and aircraft-related systems/equipment designs developed to a DASA recognised Airworthiness Code should substantially meet the level of safety expected by Defence, supplementary airworthiness design requirements may need to be prescribed by DASA as a result of:

1. known inadequacies in the Code
2. novel features included in the proposed design that are not accommodated by the Code
3. proposed Defence-unique roles and/or operating environments that are outside the scope of the Code and/or
4. Defence policies or Australian legislated requirements not being covered by the Code.

5.2.5.6 Compliance with DASA-recognised Codes and prescribed supplementation is the principal means by which safe design of an aircraft and aircraft-related systems/equipment is achieved. However, in isolation, a standards-based approach may not provide a complete basis for certification of an aircraft, or approval of aircraft-related systems/equipment having an effect on aviation safety. Many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft or systems design features are likely to pose novel hazards, which are not catered for within the standard. As a result, in addition to compliance with design standards, DASA requires the conduct of a system safety program for aircraft designs.

5.2.5.7 System safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aviation safety hazards during the design process, and provide a

Superseded

management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

5.2.5.8 DASA prescribes supplementation to recognised Codes within a framework of 'essential' and 'recommended' design requirements. While essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. DASA, in consultation with the relevant capability manager where applicable, may approve an alternative design requirement in the following circumstances:

1. where analysis confirms the alternative design requirement achieves an equivalent level of safety
2. where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety or
3. where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

Interpreting design requirements

5.2.5.9 Like other MAAs, DASA accepts that tailoring of design requirements may be necessary to achieve essential military capability. Provided DASA concludes the proposed tailoring is judicious (i.e. that the tailoring represents good judgement or sense) in the ADF operational context, DASA may approve tailoring to the prescribed requirement. Certification or approval against the tailored requirement(s) would then be pursued by the applicant. Any proposed tailoring of design requirements by an applicant for type certification and/or design approval from DASA, which results in changes to prescribed safety criteria, must be supported by documented rationale that includes:

1. the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists
2. the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative
3. the applicant's characterisation of the delta between the prescribed standard and the tailored standard
4. the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta and
5. the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft or aircraft-related system/equipment, contextualised for ADF operations.

5.2.5.10 Agreed tailoring, including any essential risk controls to achieve the defined level of safety, will usually be documented in a Military Certification Review Item (MCRI) or equivalent approved by DASA. Detailed MCRI guidance is contained in Section 7.2 Certification.

5.2.5.11 DASA may have two separate roles in the above process. First, as the repository of standards and certification expertise, DASA may advise the capability manager and applicant on how to wisely complete each step. Secondly, DASA needs to gain sufficient confidence in the conduct of the process to assure the Defence AA that the tailoring is indeed judicious. If this second role cannot be achieved, the tailoring of the prescribed requirement(s) cannot be approved and consequently certification or approval of the design would be precluded.

Superseded

5.2.5.12 DASA also provides interpretation advice and direction on the intent and meaning of airworthiness design requirements, often but not exclusively related to:

1. the approval of tailored means of compliance for a design requirement
2. advice on the relevance of proposed design requirements to the design under consideration
3. advice on pragmatic tailoring of design requirements/standards.

5.2.5.13 The prescription and interpretation of design requirements and standards may be delegated to a Standards-Delegate of the Safety Authority (Standards-DoSA). The functions and responsibilities of DoSAs are detailed in Section 4.3.

Design requirements and WHS

5.2.5.14 Defence aircraft and aircraft-related systems/equipment can present a hazard to aircrew, other aircraft occupants, other airspace users, persons near or under the aircraft flight path, and maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

1. the aircraft design can promote a safe airborne workplace for aircrew and other occupants through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. improving crash survivability for aircraft occupants
    iii. implementing design controls for in-aircraft hazards that might injure aircraft occupants
    iv. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants
2. the aircraft design can promote the safety of persons near or under the aircraft flight path through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. reducing the ground impact energy (mainly relevant to uncrewed aircraft)
3. the aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:
    i. implementing design controls for aircraft hazards that might injure ground personnel
    ii. implementing design controls for aircraft hazards that might affect the future health of ground personnel
    iii. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

Superseded

5.2.5.15 Importantly, DASA approval of prescribed design requirements for a Defence aircraft or aircraft-related systems/equipment, and proposed tailoring, does not constitute endorsement/ agreement of the determination that risk has been eliminated or otherwise minimised SFARP. Rather, this must remain a decision for the capability manager (or delegate), as does the enduring management of the residual risk due to the tailoring/alternative standard.

Defence Aviation Safety Design Requirements Manual

5.2.5.16 The Defence Aviation Safety Design Requirements Manual (DASDRM) is DASA's repository for recognised Codes, and associated prescribed supplementary design requirements, with respect to Defence aircraft and aviation support systems/equipment design.

5.2.5.17 The DASDRM prescribes design requirements for aircraft systems and functions, and aircraft support systems and equipment that have an effect on aviation safety, that are necessary to achieve safe flight in Defence's proposed Configuration, Role and Environment (CRE). It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

5.2.5.18 While capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight, robust design for capability and interoperability contributes to mission success, and therefore the safety of the crew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate.

5.2.5.19 The DASDRM comprises the following six sections:

1. Section 1 – Application of Airworthiness Design Requirements. This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.
2. Section 2 – Integrated Design Requirements. This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.
3. Section 3 – Aircraft System Design Requirements. This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.
4. Section 4 – Uncrewed Aircraft Design Requirements. This section prescribes airworthiness design requirements for UAS.
5. Section 5 – Aircraft Support Systems. This section prescribes design requirements for non-aircraft systems and ground based equipment, where the systems/equipment

Superseded

have a direct effect on safe flight or aviation safety, such as aeronautical life support equipment, mission planning systems and aerial delivery.

6. Section 6 - Aerodrome Design Requirements. This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

5.2.6 Formal Regulatory Advice

Introduction

5.2.6.1 DASA may provide formal regulatory advice on any Defence Aviation Safety policy within its remit in order to assist with understanding and compliance. This section provides guidance on seeking such advice. Other queries, such as those concerning DASA business matters, availability of training, staff duties, contact details and updates to ongoing activities do not warrant a formal process and may be addressed through normal lines of communication.

When to make a formal request

5.2.6.2 Only certain types of queries warrant the application of a formal process. Such queries fall into the following broad categories:

1. requesting interpretation of DASR or other policy:
   i. where the intent is unclear
   ii. relating to a situation not explicitly covered by existing policy.
2. requesting advice regarding implementation of DASR or other policy, such as:
   i. whether a particular approach is compliant
   ii. applicability of policy to a particular activity.

Before making a formal request

5.2.6.3 DASA publishes a number of educational and promotional artefacts, which may answer a query without the need to request advice. See Section 5.2.4 *Regulatory supporting information* and the *Education and Promotion* page on the DASA web site.

5.2.6.4 The DASP Policy and Guidance Portal (PGP) contains a functional search engine that may assist in searching for specific terminology or phrases. Tips for navigation and searching are contained within the PGP User Guide.

How to make a formal request

5.2.6.5 If formal regulatory advice is required, the preferred method to request advice is via a DASR Query Form (DQF). In the case of uncertainty as to whether a DQF is suitable, email dasa.dasr@defence.gov.au.

5.2.6.6 While an email or phone call directly to a desk officer may seem more efficient, it does not always result in appropriate DASA registration and oversight. Registration informs DASA which areas of policy may require review or additional educational material and builds traceability for future updates. Oversight of queries is important for managing and prioritising DASA workload and ensures that advice follows an appropriate approval process before release. Therefore, DASA reserves the right to redirect any query to written form.

Superseded

Turnaround Times

5.2.6.7 DASA will negotiate and agree upon a turnaround time with the query initiator as the first action following receipt of a query. DASA will communicate any subsequent changes to that timeline to all involved parties when they become apparent.

5.3 Aviation Safety Authorisations

5.3.1 Purpose

5.3.1.1 The DASR make provision for DASA to issue a range of 'authorisations' if assured that the regulated community has met, and continues to meet, the requirements and constraints of the DASR. These authorisations may be in the form of certificates, permits, approvals or licenses.

5.3.1.2 This chapter presents an overview of each common aviation safety authorisation.

5.3.2 Aviation Safety Authorisations

5.3.2.1 DASA-issued authorisations can broadly be characterised as pertaining to organisations, products and/or personnel. These authorisations are as follows:

1. organisational authorisations:
    - i. Military Air Operator (MAO)
    - ii. Aerodrome Operator (ADOPR)
    - iii. Air Cargo Delivery Service Provider (ACDSP)
    - iv. Air Navigation Service Provider (ANSP)
    - v. Air Battle Management Operator (ABMO)
    - vi. Military Design Organisation (MDO)
    - vii. Military Production Organisation (MPO)
    - viii. Approved Maintenance Organisation (AMO)
    - ix. Continuing Airworthiness Management Organisation (CAMO)
    - x. Maintenance Training Organisation (MTO)
    - xi. Military Type Certificate Holder (MTCH) (currently an implicit approval)
2. product authorisations:
    - i. Military Type Certificate (MTC)
    - ii. Military Restricted Type Certificate (MRTC)
    - iii. Military Supplemental Type Certificate (MSTC)
    - iv. Military Permit to Fly (MPTF)
    - v. Military Certificate of Airworthiness (CoA)
    - vi. Military Restricted Certificate of Airworthiness (RCoA)
    - vii. Australian Military Technical Standard Order (AUSMTSO)

Superseded

viii. Approval of Repair Design

ix. Airworthiness Directive (AD)

x. Aircraft Maintenance Programme (AMP)

xi. Uncrewed Aircraft System Operating Permit (UASOP)

xii. Aerodrome Certificate (ADC)

xiii. Other[1]

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: DASA directly authorises certain management personnel within approved organisations. These are commonly referred to as 'Form 4 authorisations', since they are approved on DASA Form 4, Acceptance of Nominated Management Personnel. In the context of this chapter, those authorisations are considered to be part of the organisational approval process, so they are not listed separately here.

5.3.2.2 The type and scope of authorisations needed for a particular aircraft, aerodrome or air navigation service will depend on a range of factors, for example the involvement of other civil or military Aviation Authorities, the support arrangements implemented by Defence, and so on. These issues are explored elsewhere in this Manual.

5.3.2.3 Annexes A to X individually examine the authorisations listed in paragraph 3. Each annex explains the purpose of the authorisation, the relevant DASR requirements, applying for the authorisation, the responsibilities of the authorisation holder, and DASA's approach to compliance assurance.

Annexes:

(a) Military Air Operator

(b) Aerodrome Operator

(c) Air Cargo Delivery Service Provider (To be issued)

(d) Air Navigation Service Provider (To be issued)

(e) Military Design Organisation

(f) Military Production Organisation

(g) Approved Maintenance Organisation

(h) Continuing Airworthiness Management Organisation

(i) Maintenance Training Organisation

(j) Military Type Certificate Holder

(k) Military Type Certificate

Superseded

(l) Military Restricted Type Certificate (To be issued)

(m) Military Supplemental Type Certificate

(n) Military Permit to Fly

(o) Military Certificate of Airworthiness

(p) Military Restricted Certificate of Airworthiness (To be issued)

(q) Australian Military Technical Standard Order

(r) Approval of Repair Design

(s) Airworthiness Directive (To be issued)

(t) Aircraft Maintenance Programme

(u) Uncrewed Aircraft System Operating Permit

(v) Aerodrome Certificate

(w) Military Aircraft Maintenance Licence

(x) Air Battle Management Operator (To be issued)

5.4 Oversight and enforcement

5.4.1 Introduction

5.4.1.1 This section expands on the Oversight and Enforcement (O&E) policy described in section 4.1.4. Specifically, it explains how regulated entities can expect to be engaged by DASA in assessing initial and ongoing compliance.

5.4.1.2 **Regulated entity.** The term 'regulated entity' is used to describe the different organisations and personnel within the Aviation Safety community that are regulated under DASR, and who are subsequently oversighted by DASA. These entities are typically awarded DASA-issued authorisations, as listed in section DASPMAN Vol 3 Chapter 5.3.2 Aviation Safety Authorisations.

5.4.2 DASA O&E-related responsibilities

5.4.2.1 The DASA regulatory facing directorates accountable for O&E functions are DAVNOPS, DIA and DCA. The remit of each is detailed below:

1. **DAVNOPS.** DAVNOPS responsibilities include:

   i. conducting regulatory compliance assessments of organisations to enable the issuing of:

      – a Military Air Operator Certificate (MAOC) and corresponding Operational Specification (OpSpec) under DASR.ARO

      – an Air Navigation Service Provider Certificate (ANSPC) and Service Provision Conditions (SPC) under DASR.ANSP

      – an Aerodrome Operator Certificate (ADOPRC) and Aerodrome Operator Specification (ADOpSpec) under DASR 139

Superseded

- an Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Cargo Delivery Operational Specification (ACDOpSpec) under DASR ACD
- an Air Battle Management Operator Certificate (ABMOC) and Operational Specification (OpSpec) under DASR ABM

ii. conducting oversight to allow the retention of existing organisation authorisations.

2. **DIA.** DIA responsibilities include:

i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

- a Military Type Certificate Holder (MTCH) organisation approval and the corresponding platform Type Certificate under DASR Part 21 Subpart B
- a Design Organisation Approval (DOA) for engineering design services under DASR Part 21 Subpart J.
- a Design Production Organisation Approval (POA) for parts production services under DASR Part 21 Subpart G or DASR Part 21 Subpart F.

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

3. **DCA.** DCA responsibilities include:

i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

- DASR Part M Continuing Airworthiness Management Organisations (CAMO) authorisations
- DASR Part 145 Maintenance Organisation (DASR 145 MO) authorisations
- DASR Part 147 Aircraft Maintenance Training Organisation (DASR 145 AMTO) authorisations
- DASR Part 66 Military Aircraft Maintenance Licences (DASR 66 MAML)

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

5.4.3 Initial authorisation process

5.4.3.1 To gain an initial authorisation, the applicant:

1. organisation must demonstrate:

i. a Defence need for the award of the authorisation

Superseded

ii. a local documented management system that complies with DASR requirements for the proposed scope and level of activities, as defined by their organisation approval basis (ie the set of documents which provides the objective quality evidence necessary to prove compliance with the relevant DASR)

2. Nominated Management Personnel must demonstrate:

i. a Defence need for the award of the authorisation

ii. compliance with specific qualification, training and experience requirements.

5.4.3.2 **Application.** An application for initial authorisation is made on the relevant DASR form, in a manner established by DASA within the respective DASR. Each form describes the information to be included to demonstrate compliance, how the form is to be submitted and who to. Where the DASR does not prescribe a format or manner for the application, the applicant should contact the relevant DASA Directorate for guidance.

5.4.3.3 **Initial DASA assessment.** The process by which DASA assesses applications varies between organisations and Nominated Management Personnel. For organisations, the assessment process begins with a desk top audit of the organisation's relevant documentation (i.e. evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable'—see below). For Nominated Management Personnel, DASA assesses compliance with specific qualification, training, and experience requirements.

5.4.3.4 If the applicant is found to be deficient in required content or non-compliant with any relevant DASR requirement, DASA will endeavour to request additional information where practicable. Post assessment the outcome of the application will be notified to the organisation as:

1. progressed to the next stage

2. rejected, providing reasons

3. conditionally progressed, with actions taken by DASA and the applicant to ensure non-compliances are resolved.

5.4.3.5 **On-site DASA assessment.** An on-site assessment is not an essential part of the initial authorisation process for any DASR authorisation and will be dependent on the nature of the request. DASA will determine if there is a need to conduct an on-site assessment, based on the outcome of the initial assessment, and the scope, level, and complexity of the application. Where conducted, the on-site assessment may include inspection of physical facilities and additional documents, and further face-to-face discussion with applicant staff (for additional 'Present', 'Suitable' and 'Operating' evidence—see below).

5.4.3.6 **DASA Organisational Approval.** Following the initial assessment and, if conducted, on-site assessment, the DASA team will provide a recommendation for authorisation to the DASA assessment lead. Where appropriate, an authorisation package will be compiled for DG DASA approval. Once approved, authorisation artefacts are dispatched to the applicant at which point the applicant may utilise privileges granted, noting any limitations.

5.4.3.7 **Timeline.** DASA timelines for the assessment and approval of authorisation applications will depend on the scope and complexity of the authorisation sought, and the level of DASA involvement to support the applicant through the process. DASA will endeavour to collaborate with applicants and

Superseded

action authorisation requests in a timely manner. Approvals may be expedited based on operational or safety imperatives and negotiated accordingly.

5.4.3.8 **Post approval.** The organisation and Nominated Management Personnel transition from the 'initial authorisation' phase to ongoing DASA oversight to retain their authorisation. The applicant is responsible for maintaining ongoing compliance with the relevant DASR and rectifying any future internally identified non-compliances through their own Quality Management System.

5.4.4 Authorisation change and retention process

5.4.4.1 **Changes to authorisations**. Should a regulated entity identify a need for authorisation scope/limitations/privilege changes, the entity must apply to DASA (except where otherwise permitted by DASR). Applications for changes to authorisations are made on a form and in a manner established by DASA within the respective DASR, as per their initial authorisation. In actioning the application, DASA will follow the same process as for initial authorisations, adjusting the scope and extent of the assessment to suit the nature of the change. The organisation and Nominated Management Personnel must not implement the proposed change until DASA has issued updated authorisations (except where otherwise permitted by DASR and previously agreed by DASA).

5.4.4.2 **Retention of authorisation.** DASA authorisations remain extant provided regulated entities retain a Defence need and continue to comply with respective DASR. Once the initial authorisation is awarded, ongoing DASA surveillance and oversight of authorisation holders commences. A key component of an effective regulatory framework is ensuring that regulated organisations have a clear understanding of when, why and how DASA will review ongoing compliance. DASA assures the validity of authorisations by applying an oversight cycle commensurate with the perceived risk to Aviation Safety (generally every 24 months). DASA's risk-based approach continually reviews safety intelligence collected from active and passive surveillance activities. Based on collected safety intelligence, DASA conducts oversight of authorisation holders, adjusting frequency and scope of oversight to suit the perceived risk.

5.4.5 PSOE for Regulatory Oversight

5.4.5.1 The DASP O&E policy is documented in section 4.1.4, and supports compliance with the DASR through application of a consistent O&E operating model. This section provides Defence tailoring of the civil PSOE model for broader DASR application; noting the PSOE model developed for ICAO Annex 19 is heavily oriented towards Management System maturity assessment vice broader regulation compliance. When considering the Defence aviation context it is important to understand the hazard-based nature of DASR and the regulated community's SFARP obligation in achieving an acceptable level of safety through a baseline level of compliance.

5.4.5.2 Within this context, DASA will execute oversight activities of a regulated entity using the following Defence-tailored PSOE definitions:

1. **'Present' (P).** There is evidence that the process, behavior and technology indicators required for DASR compliance are clearly visible and documented within the organisation's systems.

2. **'Suitable' (S).** There is evidence the process, behavior and technology indicators are suitable (i.e. regulatory compliant) for the size, nature, context, complexity of the organisation and its services, and the Aviation Safety hazard expected to be mitigated (including consideration of industry expectation for standards, codes, guidance etc).

Superseded

3. **'Operating' (O).** There is evidence that the process, behavior and technology indicators are in use and an output is being produced.

4. **'Effective' (E).** There is evidence that the process outputs , behavior and technology indicators are effective in achieving the desired DASR Aviation Safety hazard control outcome.

    i. Note, effectiveness assessments represent an evolution in compliance methodology, beyond traditional compliance/conformance assessments. In executing an effectiveness assessment, a thorough understanding of the applicable regulation's aviation safety hazard is required, to ascertain if the process outputs are effectively preventing realisation of that hazard (based on evidence collected during an oversight activity).

5.4.5.3 Where non-compliances or potential problems are identified through PSOE application enforcement action will be taken against the organisation.

5.4.6 Management of DASA Findings

5.4.6.1 Findings are issued to highlight an actual or potential non-compliance against DASR. All findings are supported by objective quality evidence and contain adequate detail to support the finding.

5.4.6.2 A Finding will only be issued to remedy an identified non-compliance to a specific regulatory outcome. Once Findings are issued, the regulated entity is responsible for identifying immediate actions, root causes, developing a corrective action plan and implementing corrective actions to address the non-compliance.

5.4.6.3 **Finding levels.** DASA issues Level 1, 2 and 3 findings, as follows:

1. **Level 1.** Any non-compliance with DASR requirements which lowers the safety standard and seriously hazards flight safety.

2. **Level 2.** Any non-compliance with DASR requirements which lowers the safety standard and possibly hazards flight safety.

3. **Level 3.** Any non-compliance with DASR requirements, or potential problem, that could lower the safety standard and possibly hazards flight safety.

5.4.6.4 **DASA Level 1 and 2 Findings.** Once a DASA Finding is issued to an organisation, DASA will monitor that actions required to address non-compliances or potential non-compliances are managed and tracked until closure of the Finding. The DASA Level 1 and 2 Findings lifecycle has six distinct stages for regulated organisations, defined on DASR Form 1299 as follows:

1. **Organisational acceptance of Finding.** Organisations accept the Finding based on a DASA assessment of the evidence, and respond with proposed dates for the completion of their Immediate Actions and development of their Corrective Action Plan. DASA will assess the response and agree to timeframes, or consult for revised dates.

2. Where organisations does not agree with the DASA Findings issued, they must formally write to DASA, providing objective evidence as to why the Finding is inappropriate. DASA will assess the additional evidence and respond.

Superseded

3. **Implementation of Immediate Actions.** Organisations implement short-term solutions to contain the non-compliance and manage the associated risk mitigated SFARP. DASA will use DASR Form 1299 to assess the organisation's actions and document acceptance, or request rework as appropriate.

4. **Root cause analysis.** Organisations assess the root causes of the non-compliance. Multiple root cause analysis tools are available to organisations, including the '5-Whys', Bow Tie, Ishikawa diagrams, Apollo Reality Charting, and Tree Diagram. Importantly, there is never just one root cause to a non-compliance, and 'human error' is never a valid conclusion.

5. DASR Form 1299 provides (as a non-compulsory use tool) a '5-Whys' template against which a root cause analysis can be conducted. DASA will use DASR Form 1299 to assess the organisation's analysis and document acceptance, or request rework as appropriate.

6. **Development of the Corrective Action Plan.** Organisations identify a corrective action for each root cause identified, to prevent recurrence. For each corrective action, the organisation defines:

    i. a means by which the effectiveness of the corrective action to prevent reoccurrence will be assessed

    ii. the objective quality evidence required to substantiate corrective action effectiveness

    iii. a lead person for its implementation, and for reporting implementation and substantiation status

    iv. the due date for corrective action completion, cognisant of the need to validate the effectiveness of the corrective action prior to closure

    v. any justification supporting the completion date choice (e.g. time to collect validation evidence, or co-dependency/secondary effects).

7. DASR Form 1299 provides a Corrective Action Plan template. DASA will use the form to assess the organisation's plan and document acceptance, or request rework as appropriate.

8. **Implementation of Corrective Actions.** Organisations implement the DASA-agreed corrective actions, progressively submitting each completed Corrective Action to DASA for consideration on DASR Form 1299. DASA will track and manage the progress of approved Corrective Action Plans so that a Finding will not fall overdue unless an individual Corrective Action due date has passed.

9. DASA will use the DASR Form 1299 to assess the organisation's assessment and document acceptance, or request rework as appropriate.

10. **Finding closure.** Once DASA is satisfied that the organisation has implemented and validated the effectiveness of all actions that address the non-compliance, DASA will close the Finding and notify the organisation.

5.4.6.5 **Findings Requiring Re-work.** Where DASA assesses issues with the quality of the response provided by an organisation in developing/implementing Immediate Actions, Root Cause Analysis, Corrective Action Plan or Corrective Actions it will be returned to the organisation for re-work. In doing so, DASA will provide the necessary details of the cause for re-work for further organisational

Superseded

consideration and action. As part of the re-work process the organisation will generally be required to consider if a Finding Extension is required based upon the impact of the quality issue relative to the extant hazard retention. Where extension to originally agreed submission timelines is necessary the criteria under 5.4.6.6 will be required.

5.4.6.6 **DASA Level 3 Findings.** Level 3 Findings are notified to the organisation through DASA correspondence (usually an initial authorisation notification or an oversight report). Level 3 Findings are expected to be managed to closure under the organisation's QMS. DASA will review Level 3 Finding progress during subsequent O&E activities. Inaction against a Level 3 finding does not automatically equate to a Level 2 Finding being issued. However, it may serve as evidence that, when coupled with other safety intelligence, may lead to issue of a Level 2 Finding.

5.4.6.7 **DASA Findings extensions.** An organisation can request an extension (usually through email to the respective Desk Officer) at any stage in the Findings management process. However, as the organisation owns the Aviation Safety risk associated with the Finding until DASA Finding closure, DASA will only consider these requests based on an assessment of the Finding's residual risk being mitigated SFARP. Evidence expected to be provided in an extension request should include:

1. the reason further time is required to complete actions,
2. details of what has already been completed against Findings root causes and agreed Corrective Actions,
3. what outstanding Corrective Actions remain and their revised dates for completion, and
4. justification of how residual aviation safety risk will be controlled SFARP until Corrective Action completion.

5.4.6.8 DASA assesses all extension requests in accordance with the DASA Enforcement Principles at section 4.1.4 and notifies organisations of the outcome. However, organisations should not assume automatic extension approval.

5.5 Education and training

(Reserved)

Superseded

Annex A - Military Air Operator

Purpose of the authorisation

(a) DASR require that Defence registered aircraft are operated by a Military Air Operator (MAO) organisation (DASR ARO.100). MAOs are ADF organisations approved by DASA through the issue of a MAO Certificate (MAOC).

(b) An independent organisational approval of an organisation provides assurance of the ongoing safety of aircraft flight operations. The MAOC is the mechanism to achieve this approval and assurance.

(c) Seeking initial organisation approval and maintaining this organisation approval involves close liaison between both DASA and the MAO, and carries mutual accountabilities. The outcome sought by both parties is the establishment and maintenance of an approval basis.

DASR requirements

(d) DASA must approve a MAO seeking to operate within the Defence Aviation Safety Framework (DASF) against DASR for the scope and level of operations required by their organisation, before their organisation can operate. Once approved, they become an 'Approved Organisation' for the defined scope and level of operations shown on their MAOC.

(e) MAO is a regulatory term that is applicable to an organisation approved by the DASA to conduct Defence aircraft flight operations. To become a MAO the commander of the organisation nominated by their Service must apply to DASA by submitting an Operations Compliance Statement (OCS). DASA assesses information in the OCS to assure that it forms the basis of judgement for the suitability of flight operations of an airworthy aircraft, maintained operated to approved standards and limitations, by competent and authorised individuals, who are acting as a member of an approved organisation.

(f) DASA may award a MAOC when satisfied that the MAO can safely conduct flight operations. The MAOC is accompanied with an Operations Specification (OpSpec) issued by DASA. The OpSpec contains the details of the scope of operations with any specific DASA approvals, conditions or limitations. An OpSpec annex is applied to the OpSpec to define the operations of each aircraft type to be operated.

(g) While changes to a MAOC are infrequent, the OCS and OpSpec require amendment when circumstances change and OpSpec authorisations require updating. When an MAO identifies the need for an amendment to the MAOC or OpSpec, they are to apply to DASA using an OCS to seek those changes. The OCS must include factual and documented evidence that supports the proposed amendment. Subjective material or unsigned documents do not meet the suitable evidence requirement to support a submission.

(h) Beyond initial approval, if an MAO is to keep operating under DASR, they must maintain their organisation approval basis. DASA approved updates to the approval basis are required for the introduction of new capabilities, changes to DASR, or for significant improvements to the organisational system of management. Maintenance of OpSpec currency is essential to ensure it accurately reflects current operations.

Superseded

(i) **Accountability.** The commander of a MAO organisation nominated by a Service is the Accountable Manager (AM) and their position listed in the OCS. Throughout the DASRs there are specific requirements placed on the AM. While delegation of the execution of these requirements is permissible, accountability for DASR compliance remains with the AM as part of their command responsibilities and cannot be delegated.

(j) The AM appointment in the DASR establishes an accountable officer responsible for the implementation of DASR within an organisation and subordinate units. All authority for an AM to implement DASR comes from their appointment to command of that organisation and not their nomination as an AM. The nomination as an AM does not empower the officer, rather it establishes, within the DASF, their accountability for DASR compliance under the WHS Act 2011.

(k) **Chain of command.** DASR compliance does not affect the chain of command. A MAO's higher commander may elect to retain or direct implementation of DASR compliance at their level. Should this occur, the higher commander's directions must be compliant with applicable DASR. This will create a situation where the higher commander and the MAO-AM become shared duty holders and accountable for their respective implementation of DASR[1]. The MAO OCS should reflect all specific circumstances, and from this, DASA will conduct oversight and enforcement appropriate to the context of the organisations.

(l) Where DASR 21, Part M, 66, 145 and 147 call for and place requirements on an AM, the MAO-AM is the AM for their subordinate units subject to those regulations.

Applying for the authorisation

(m) **Initial Issue and variation of MAOC and OpSpec.** The applicant organisation is to submit DASR Form 139a accompanied by an initial or updated OCS. When satisfied that all the requirements have been met DASA will issue or vary a MAOC and OpSpec.

(n) **Operations Compliance Statement.** An OCS, submitted in accordance with the requirements detailed in DASR ARO.100, demonstrates readiness to conduct flight operations in accordance with the requirements of a MAOC.

(o) With the exception of editorial and some administrative amendments, all applications for initial issue and variations of a MAOC or an OpSpec must provide factual and documented evidence. This evidence can take the form of published orders, instructions and publications (OIP), reports or certificates issued by a competent authority or other factual data. Draft documents or opinions do not constitute suitable evidence.

(p) The OCS must include an attestation by the MAO-AM that:

1. the AM is accountable for the Organisation's compliance with DASR
2. the OCS is complete and correct
3. appropriate arrangements are in place to support the scope of flight operations contained in the Operations Specification.

(q) The task of establishing or varying the MAOC may be conceptualised through steps shown below in Figure 1.

Superseded

Figure 1: Generic Steps of MAOC establishment and amendment

1. **Step 1: Establish Operational Parameters.** The DASR Flight Operations regulations are a structured suite of requirements applicable to military aviation. These rules apply to all MAOs; however, a MAO will only need to demonstrate compliance to regulations that pertain to their planned operations.

2. **Step 2: Determine Applicability.** The DASR Flight Operations regulations apply to all MAOs; however, a MAO will only need to demonstrate compliance to regulations that pertain to the Configuration, Role and Environment (CRE) described in each aircrafts' Statement of Operating Intent and Usage (SOIU). At the outset of any Introduction Into Service program, the MAO or relevant organisation should review the SOIU and determine the scope of flight operations regulations that will be applicable to the new or modified aircraft's CRE.

3. **Step 3: Planning.** Successful introduction into service usually involves multiple lines of effort from a variety of different stakeholders. These activities include establishing or modifying the flying management system, developing and approving OIP, implementing training (including flight simulation and training devices), approving aeronautical life support equipment, role equipment and portable electronic equipment and risk management. These activities often relate to outcomes in the initial or continuing airworthiness streams of work. Given the potential for multiple interrelated lines of effort, it is recommend practise to develop a program of work plan to implement flight operations arrangements. Whilst not compulsory for all programs, it is advisable to produce a DASA endorsed Operational Authorisations Plan[2] (OAP).

4. **Step 4.a: Documentation.** A MAO demonstrates compliance to the flight operations regulations by producing a suite of orders, instructions and publications, which record all aspects of the flying management system. At the apex of this documentation suite is the Operations Compliance Statement (OCS). The OCS records essential information about the proposed operations and limitations and provides traceability to relevant OIP, to establish the means of compliance to each applicable flight operations regulation. For a MAO to apply for a new OpSpec annex or to amend the existing OpSpec, the OCS must include the approval and references in the documentation applicable to the change.

5. **Step 4.b: MAO Application and Attestation.** The MAO must make a formal application to DASA to request a variation of the MAOC or OpSpec (see DASR ARO.100.C). This application must contain details of the changes required, evidence of compliance to the relevant regulations and an attestation from the MAO-AM confirming the OCS is complete and that that appropriate arrangements are in place to support the scope of flight operations contained in the OpSpec. DASA considers the MAO-AM attestation to be a significant part of the MAO approval process. As a result, the prior work done on applicability, planning and documentation stages should all support this attestation.

Superseded

Furthermore, at the time the MAO AM makes the attestation all documentation should be completed and available for review.

6. **Step 5: DASA Assurance and OpSpec Issue.** Submission of an application is via the DASA registry. Upon notification, DAVNOPS staff will review the application and conduct a desktop audit of the evidence to gain confidence that the MAO flying management system is suitable to the proposed scope of operations. Depending on the nature of the proposed changes, DAVNOPS may also conduct other safety assurance activities such as an on-site audit. When DASA is satisfied that the MAO has enacted suitable measures, it will prepare and approve a revised OpSpec.

DASA approval

(r) The DASA is the issuing authority for a MAOC[3] and the associated OpSpec, and any subsequent amendments to the MAOC and OpSpec.

(s) DASA may issue a MAOC when satisfied that the MAO can safely conduct flight operations. Submission of an OCS, in accordance with DASR Part ARO.100, demonstrates readiness to conduct flight operations in accordance with the requirements of an MAOC.

(t) **MAO Certificate.** The MAOC is a single page certificate to authorise flight operations. Submission of an OCS in accordance with DASR ARO.100 demonstrates readiness to conduct flight operations.

(u) **MAOC Operations Specifications.** The OpSpec contains the detail of the MAO operations conducted under the MAOC.

(v) **Key personnel.** The entry in the 'Key personnel' list is by appointment. An individual posted to the appointment becomes accountable for requirements of that position. A commander may determine the duties of the appointment. When an individual is temporarily assigned the duty of one the 'Key personnel' appointments, they become accountable for those duties for duration of the appointment unless there is a limitation specified in the promulgation.

(w) **Specific Approvals (if required).** Aircraft require specific approvals that detail performance based navigation system capability to access designated airspace with reduced separation criteria[4] or conduct nominated terminal flight procedures. DASA provide specific approval for performance-based navigation systems and record that in the OpSpec[5]. A MAO applying to DASA for a Specific Approval must support the application with factual and documented evidence that may include technical assessments, training documentation and other FIC elements.

(x) **Limitations or conditions (if required).** Limitations or conditions prescribed by DASA are to assure safe operations of a particular aircraft type within the ability/experience of the MAO. Operational limitations do not replicate airworthiness limitations contained in airworthiness instruments / documents such as the MRTC, or flight manual. Typically, an operational limitation will include reference to a plan and timeline to remove the limitation by the closure authority. When the appointment of closure authority is outside of DASA or the MAO, the appointment holder is to support the MAO raising an OCS for submission to DASA to amend the OpSpec. Once the closure authority has approved closure of a limitation or condition, the MAO may conduct operations without the imposition of the limitation or condition. However, the MAO should provide DASA with an updated OCS, minimising the period of a conflict

Superseded

between the published limitation or condition and the conduct of operation. This will alert DASA to the change, which may affect the conduct of DASA assurance activities.

(y) **Adding new aircraft type to the OpSpec.** When acquiring a new aircraft type an applicant (MAO or their representative, such as a Project Office) should seek allocation of an Application Identifier (AI) for the aircraft once Government has approved the acquisition. On receipt of an application for a new AI, DASA will add a new annex to the OpSpec annotated as 'Reserved'. When ready to conduct operations, the MAO will submit an OCS with applicable documentation seeking to vary the OpSpec.

(z) **Fleet addition.** The acquisition of additional aircraft for a fleet is a process known as 'fleet addition'. The extant OpSpec should not require amendment when the additional aircraft are conformant with the extant CRE, and will operate with existing OIP. If there are significant differences between the CRE or OIP, then consideration should be given to adding a new annex to the OpSpec for the fleet addition aircraft.

(aa) **Interaction and timing.** An SOIU and OpSpec are linked. An SOIU must have DASA endorsement and approval before proceeding with an application to add an aircraft to an OpSpec. The roles and tasks, CRE and aircraft usage defined in the SOIU forms the OpSpec operational boundaries.

(ab) Approval of an application for a MAOC and initial OpSpec nominally takes six to eight weeks upon receipt by DASA. This timeframe does not take into account an application for PBN approvals, which is an independent process. PBN approvals nominally take six weeks dependent on the factual and documented evidence. Recommend early engagement with DASA-DAVNOPS.

Responsibilities of the authorisation holder

(ac) **Initial Approval.** To gain an initial Organisational Approval, the MAO must first create a local system of management that reflects DASR requirements for the proposed scope and level of activities, as captured in the approval basis. The expectation is that a MAO will liaise with DASA as part of the development process, before the system is ready for DASA evaluation.

Ongoing DASA compliance assurance

(ad) DASPMAN Volume 3 Chapter 5 provides further guidance on regulatory oversight and enforcement activities.

Superseded

Annex B - Aerodrome Operator

Purpose of the Aerodrome Operator approval

(a) DASR 139 establishes the Authority's requirements for the regulatory oversight of Defence certified Aerodromes and Aerodrome Operators (AD OPR). Aerodrome Operators are ADF organisations approved by DASA through the issue of an AD OPR Certificate (AD OPRC). Each Service is responsible for selecting which organisation(s) shall be AD OPR(s).

(b) Authority approval provides the Defence AA assurance that the AD OPR will provide effective management of aerodrome design, OIP, and personnel competencies in order to support safe flight operations.

Aerodrome Operator – Accountable Manager

(c) **Accountability.** The commander of an AD OPR organisation nominated by a Service is the AD OPR Accountable Manager (AM). The DASR place specific requirements on the AM. While delegation of the execution of these requirements is permissible, accountability for DASR compliance remains with the AM — as part of their command responsibilities — and cannot be delegated.

(d) The AM appointment establishes an accountable officer responsible for the implementation of the DASR within the organisation and subordinate units. However, *the Defence Act 1903* provides the authority for the Commander to implement the DASR. The AM appointment establishes — within the DASF — accountability for DASR 139 compliance.

(e) **Chain of command.** DASR compliance does not alter the chain of command. An AD OPR's higher commander may elect to retain or direct implementation of DASR compliance at their level. In this event, the higher commander and the AD OPR-AM become shared duty holders and are accountable for their respective implementation of, and compliance with, the DASR[1]. The AD OPR Compliance Statement (CS) should reflect any such specific circumstances, and DASA will conduct oversight and enforcement appropriate to the context of the organisations.

(f) Defence operations and exercises may impose a temporary variation to the chain of command. For example, an AD OPR expeditionary squadron may be force assigned to an operational commander for activation of a Certified Aerodrome bare base (such as RAAF Scherger) during an exercise. In such circumstances, a shared duty arises out of the *Work Health and Safety (WHS) Act 2011, s. 16.* Both the AM and operational commander are considered 'Officers' for the purposes of the WHS Act, and must individually discharge their duties to the extent that they have capacity to influence and control these duties. The AM will retain responsibility for the operation of the aerodrome including continued compliance with DASR 139, and conformance with the DASR 139 compliant processes as described in the AD OPRC. In practice, this responsibility is discharged through deployment of aerodrome operations personnel who are suitably trained, competent and /or qualified to perform their role, and will operate the aerodrome in accordance with approved DASR 139 procedures.

Superseded

(g) **Initial issue of AD OPRC and OpSpec.** To gain an initial organisational approval, the AD OPR must first develop a system of management that meets DASR 139 requirements for the proposed scope and level of aerodrome operations.

(h) The applicant organisation must apply to DASA for an initial organisational approval. The application must include a CS, with AM Attestation and evidence supporting compliance with the regulation.

(i) DASA will award an AD OPRC when satisfied that the organisation complies with the requirements of DASR 139. DASA also issues an Operations Specification (OpSpec) to accompany the AD OPRC. The OpSpec details the scope of operations with any specific DASA approvals, conditions or limitations. Annexes to the OpSpec contain details of each Certified Aerodrome[2] operated by the AD OPR.

Compliance Statement

(j) The organisation is to provide a CS — approved by the AM — that details how the organisation achieves compliance with the DASR 139. The AD OPR must review the CS to capture changes to the organisation, the aerodromes and operating systems. The AM is to approve each version of the CS.

(k) The CS must demonstrate readiness to operate an aerodrome in accordance with the requirements of DASR 139. The CS details the organisation's compliance with DASR 139 through the provision of evidence and artefacts demonstrating suitable systems for the maintenance and operation of the aerodrome. Artefacts include Orders, Instructions and Publications (OIP) related to Safety Management Systems (SMS), Quality Management Systems (QMS), aerodrome manual, aerodrome maintenance programs, personnel competency frameworks and other aerodrome-specific management plans. DASR 139.30 details the content of the AD OPR CS.

(l) The CS records essential information about the proposed operations and limitations and provides traceability to relevant OIP, to establish the means of compliance withDASR 139. The CS should contain a compliance matrix — which references/hyperlinks the evidence supporting compliance.

(m) **AD OPR AM Attestation.** The CS must contain an AD OPR AM attestation, attesting that:

1. The AM is accountable for the Organisation's compliance with DASR
2. The CS is complete and correct
3. Appropriate arrangements are in place to support the scope of operations contained in the OpSpec.

(n) The AD OPR-AM attestation is a significant part of the AD OPR approval process. Work completed during the applicability, planning and documentation stages should all support the AM attestation. Furthermore, at the time the AD OPR AM makes the attestation, all documentation should be completed and available for their review.

(o) **Key personnel.** Entries in the 'Key personnel' list are by appointment. An individual posted to the appointment becomes accountable for the duties of that appointment. A commander

Superseded

may determine the duties of the appointment. When an individual is temporarily conducting 'Key personnel' appointment duties, they become accountable for those duties for the duration of the appointment unless there is a limitation specified in the promulgation.

(p) **Limitations or conditions (if required).** DASA may prescribe limitations or conditions to assure safe operations of a particular aerodrome of the AD OPR. The intent of an operational limitation is not to replicate limitations contained in documents such as the Aerodrome Certificate or aerodrome manual. A limitation will typically reference a plan and timeline to remove the limitation by the closure authority.

Maintaining an approval

(q) The AD OPR must operate in accordance with the DASA approved system, ie the system DASA approved, in order to maintain the AD OPRC. The AD OPR-AM is accountable for ensuring DASA-issued approvals remain current for their organisation and aerodrome operations.

(r) The AD OPR must seek DASA approval for:

1. updates to the level or scope of the organisational approval
2. introduction of new capabilities
3. changes to DASR
4. significant changes to the organisational management system.

(s) When an AD OPR identifies the need for an amendment to the AD OPRC and/or OpSpec, they must apply to DASA with an updated CS containing documented evidence to support the proposed amendment. An updated AM attestation is required with each updated CS.

(t) Changes that may require CS updates include:

1. substantial changes to the AD OPR organisation
2. changes to an aerodrome's Statement of Operating Intent and Usage (SOIU)[3]
3. change or withdrawal of a condition or limitation
4. addition or withdrawal of an aerodrome by the AD OPR
5. changes resulting from a regulation update
6. change or withdrawal of a regulation-based requirement.

DASA assurance and OpSpec issue

(u) The AD OPR must submit the application to the DASA Registry. Upon notification, DASA staff will review the application and conduct a desktop audit of the evidence to confirm whether the AD OPR management system is suitable for the proposed scope of operations. DASA may also conduct other safety assurance activities such as an on-site audit. DASA will prepare and approve AD OPRC and/or OpSpec when satisfied that the AD OPR has implemented suitable measures to comply with DASR 139.

Superseded

(v) Once DASA issues an Aerodrome Certificate*4*, the AD OPR may submit an application to update the AD OPRC OpSpec to include the Certified Aerodrome. On determining that the Certified Aerodrome operations meet all DASR 139 requirements, DASA will amend the AD OPRC OpSpec, thereby approving the AD OPR to operate the DASR 139 Certified Aerodrome. Figure 1 provides an overview of the process.

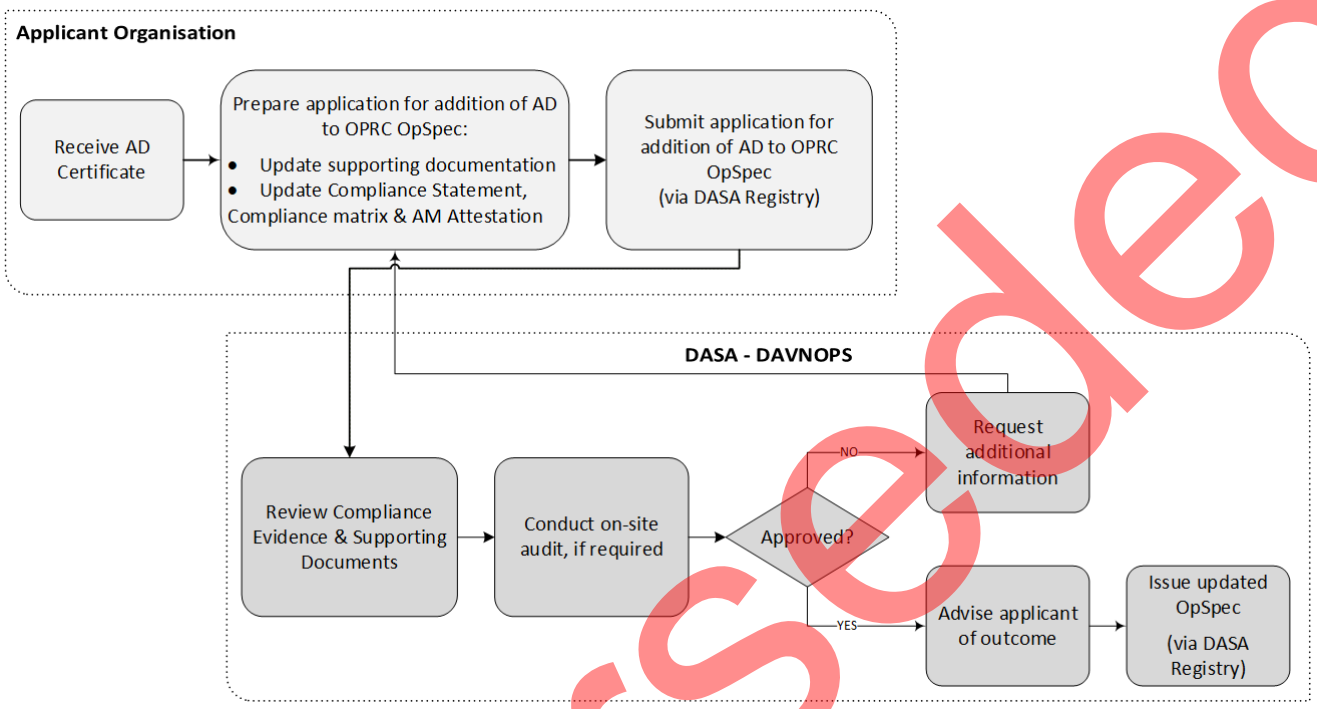


Figure 1: Addition of Certified Aerodrome to the OpSpec

(w) DASPMAN Volume 3 Section 5 contains further guidance on regulatory oversight and enforcement activities.

Superseded

Annex C - Air Cargo Delivery Provider*

Superseded

Annex D - Air Navigation Service Provider*

Superseded

Annex E - Military Design Organisation

Purpose of the authorisation

(a) Every aircraft requires support from one or more aircraft design organisations throughout its life to provide a range of design-related services. These services may include, for example, designing modifications, designing repairs, provision of design data, advice on risks due to design or maintenance deficiencies, investigations of defects, and so on. Of these services, a subset are regulated under DASR, primarily those related to design changes and repairs.

(b) An organisation that has been approved by DASA to provide aircraft design services for a Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a Military or Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types.

DASR requirements

(c) A Military Design Organisation Approval (MDOA) may be awarded by DASA when satisfied that the design organisation complies with the requirements of DASR Part 21 Subpart J (hence MDOs are sometimes called '21J organisations'). The DASR presents eligibility criteria, requirements for the design assurance system, terms of approval, candidate privileges (approved at DASA's discretion), and obligations. It also specifically requires the organisation to establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

(d) DASA's approval of an MDO is reflected on a Form 83 – MDO Approval Certificate, which summarises the terms of that approval, including:

1. Scope of approval: The type of design activities for which approval is granted, including fields of expertise
2. Platforms: The specific Defence aircraft types within the scope of the approval.
3. List of products: (not currently used)
4. Privileges: Any activities that may be performed independently by the MDO without further Authority verification
5. Limitations: Any limitations on the above

Applying for the Authorisation

(e) DASA does not accept unsolicited applications for MDO approval; rather, there must be a Defence capability need for that MDO. An application for MDO Approval is made via DASA Form 80 - Application For Military Design Organisation Approval.

(f) Per DASR 21.A.243, the primary application artefact is the design organisation handbook (also known as the Design Organisation Exposition (DOE)), which describes, directly or by cross-reference, the organisation, the relevant procedures and the products (or changes to products) to be designed. Furthermore, where partner organisations or subcontractors are to be employed, the handbook also includes information on how the design organisation is to ensure those organisations comply with certain DASRs. Finally, the MDO is required to furnish

Superseded

a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness in the organisation. Appendix 1 provides further insight into DASA's expectations for a design organisation handbook.

(g) **DASA Approval.** DASA's approval of a new MDO will usually be based on a desktop assessment of the handbook, particularly where the candidate organisation is yet to produce relevant aircraft designs. DASA will then conduct a deeper assessment, usually including an on-site visit, once the organisation has exercised and started to evolve its key design systems. Particular emphasis will be placed on the effectiveness of the SMS.

(h) Where an extant MDO is requesting an expansion of its current MDOA, for example the addition of an aircraft type or an expanded privilege, the DASA assessment may be proportionately reduced. Applications for MDO changes are made via DASA Form 82 - Application For Significant Changes To Design Organisation Approval.

(i) DASA's evaluation processes and templates are contained in the DASA Instruction, DASA(I) SAPO 01-003, DASR Organisational Approvals, which is available on the DASA intranet site.

(j) **Interaction and timing.** Where Defence decides to engage a new Industry MDO, the Defence contracting organisation should engage with DASA well before a Request for Tender (or similar) is released. DASA will help the contracting organisation explore its options and identify essential contract inclusions. DASA may also help the contracting organisation with pre-contract assessments of the prospective MDO.

(k) Prospective MDOs should engage with DASA soon after the formal decision is made for them to take on that role. DASA will educate the prospective MDO on application requirements, and will assign an internal point of contact. In DASA's experience, the time from first contact to approval of the MDO can vary between three and six months.

Responsibilities of the authorisation holder

(l) Responsibilities of a MDOA holder are presented at DASR 21.A.265. Amongst other things, the MDOA holder is required to:

1. determine that the design of products, changes or repairs comply with applicable airworthiness requirements and have no unsafe features, and
2. maintain the handbook in conformity with the design assurance system, and ensure the handbook is used as a basic working document within the organisation

Ongoing DASA compliance assurance

(m) Once an MDOA is achieved, DASA will commence ongoing MDO compliance assurance, to gain confidence that the MDO remains a professional and effective design organisation. While compliance with DASR is cornerstone to this confidence, DASA will also explore the broader safety outcomes that the MDO is achieving, for example how its SMS interfaces with other related platform SMS.

(n) DASA compliance assurance is normally achieved through on-site visits, remote assessments, and ongoing monitoring. Summarised:

Superseded

1. **On-site visits.** On-site visits may be informal or formal. Informal visits are usually to provide regulatory support and guidance, and for engagement with an organisation, while formal visit are used to validate the management of previous DASA findings and to conduct oversight.

2. **Remote assessments.** Remote assessments may be suitable if a visit to the organisation is not feasible for reasons of security, health, budget and availability of personnel, or the area to be assessed doesn't justify a full onsite visit. Business Intelligence and the use of Strategic Data techniques are often used to assist in the targeting of areas to be reviewed.

3. **Ongoing monitoring.** DASA desk officers will identify other ways of gaining ongoing confidence in MDO performance without necessarily engaging the MDO. This may include, for example, monitoring the quality of MDO products that are evaluated by other DASA sections, engaging with customers of the MDO, exploring the outcomes of other DASA review activities, and so on.

(o) DASA's oversight processes for MDOs are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) 01-009, DASR Findings. Both are available on the DASA intranet site.

Appendix:

(a) Design Organisation Handbook Requirements

Superseded

(a) Where an aircraft design organisation is pursuing approval by DASA as a Military Design Organisation (MDO), DASA will rely extensively on the design organisation handbook to gain confidence that the organisation has the potential to provide professional aircraft design services. The information below provides an overview of the requirements of the handbook for MDOs; further information can be found in DASR 21.A.243.

(b) Pivotal to the handbook is a description of the Design Assurance System (DAS) that is to be employed by the MDO, which shows how the MDO intends to:

1. ensure their design of products, parts and appliances, design changes and repair designs, all comply with the type certification basis (TCB) for the aircraft
2. provide independent checking of the showings of compliance with the TCB
3. account for design input provided by other organisations
4. implement an effective Safety Management System (SMS)
5. provide for independent monitoring and improvement of the DAS.

(c) The DAS must specifically address, either directly or by reference to other documents, the organisational structure and key responsibilities, procedures and resources that will be employed by MDO, as summarised below.

(d) **Organisational structure and key responsibilities.** In addition to presenting the proposed MDO structure, the handbook will document the incumbents for the following roles: the Chief Executive, any authorised signatories (including Compliance Verification Engineers (CVEs), and the following three individuals that are formally accepted by DASA via the issue of Form 4 - Acceptance of Nominated Management Personnel:

1. Head of Design Organisation - responsible for the design organisation's output
2. Chief of the Office of Airworthiness - responsible for the preparation of certification program plans, interpreting airworthiness requirements, classifying design changes and repair designs, independent checking of showings of compliance, approval of minor changes and repair designs, and other functions.
3. Chief of Independent System Monitoring - responsible for continual evaluation of the DAS to ensure it remains effective (which must also cover design suppliers)

(e) **Procedures.** The design organisation handbook will document key MDO procedures for a range of functions, including design, compliance documents, independent checking, independent monitoring, and accounting for external input. It will also document the selection, training, ongoing competence and identification of authorised signatories (including CVEs).

(f) **Resources.** The handbook will describe the available resources to support the provision of professional design services, including human resources, equipment, tools, facilities, design data, and so on.

Superseded

Annex F - Military Production Organisation

(a) This guidance is complementary to the requirements of DASR 21 Subpart G - Military Production Organisational Approval, and not supersede nor replace the information defined within it.

Purpose of the authorisation

(b) Every aircraft requires support from one or more production organisations which have approval to manufacture aircraft parts and appliances in conformity with approved data.

(c) An organisation that has been approved by DASA to provide aircraft production services for a Defence aircraft is termed a Military Production Organisation (MPO). These MPOs may be a Military or Industry organisation, and may receive an approval for the production of aviation Products (aircraft, engine or propeller), Parts and Appliances.

DASR Requirements

(d) A Military Production Organisation Approval (MPOA) may be awarded by DASA when satisfied that the production organisation complies with the requirements of DASR 21 Subpart G (hence MPOs are sometimes called '21G organisations'). The DASR presents eligibility criteria, requirements for the production quality system, terms of approval, candidate privileges (approved at DASA's discretion), and obligations. It also specifically requires the organisation to establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS.

(e) DASA's approval of an MPO is reflected on a Form 55 – MPO Approval Certificate, which summarises the terms of that approval, including the Privileges granted in accordance with DASR 21.A.263:

1. Scope of Work: The type of production activities for which approval is granted, including products and categories of parts and appliances
2. Location: The location of any production facilities
3. Privileges: Perform production activities and issue conformity certification, and certification of release to service artefacts in accordance with the privileges granted.
4. Limitations: Any limitations on the above

Applying for the Authorisation

(f) DASA does not accept unsolicited applications for MPO approval; rather, evidence must be provided for a Defence capability need. An application for MPO Approval is made via DASA Form 50 - Application For Military Production Organisation Approval.

(g) Per DASR 21.A.143, the primary application artefact is the Production Organisation Exposition (POE), which provides an accurate definition and description of the production organisation. Furthermore, where partner organisations or subcontractors are to be employed, the

Superseded

exposition also includes information on how the production organisation is to ensure those organisations comply with certain DASRs applicable to production activities.

(h) The applicant is required to nominate an Accountable Manager who has corporate authority for ensuring that all production work is carried out to the required standard. The MPO is also required to furnish a statement of the qualifications and experience of the management staff. Dependent on the size of the organisation the applicant shall nominate two or more managers for the roles of Responsible Manager and Quality Manager. Appendix 1 provides further insight into DASA's expectations for a production organisation exposition.

(i) **DASA Approval.** DASA's approval of a new MPO will be based on a desktop assessment of the exposition and supporting procedures. A site visit will be made to perform an initial assessment of the facilities and manufacturing equipment. At this visit meetings will take place with the Form 4 holders nominated by the applicant, at which they will present the organisation, quality system and demonstrate their understanding of the regulatory requirements of DASR 21 Subpart G.

(j) At approximately 12 months post the granting of MPOA, DASA will conduct an onsite oversight activity of the MPO, once the organisation has exercised its privileges and started to mature the elements of its production system. Particular emphasis will be placed on the effectiveness of the SMS.

(k) Where an extant MPO is merely requesting an expansion of its current MPOA the DASA assessment may be proportionately reduced. Applications for MPO changes are made via DASA Form 51 - Application for Significant Changes or Variation of Scope and Terms of DASR 21 Production Organisation Approval.

(l) **Interaction and timing.** Where Defence decides to engage a new Industry MPO, the Defence contracting organisation should engage with DASA well before a Request for Tender (or similar) is released. DASA will help the contracting organisation explore its contract options and identify essential contract inclusions. DASA may also help the contracting organisation with pre-contract assessments of the prospective MPO.

(m) Prospective MPOs should engage with DASA soon after the formal decision is made for them to take on that role. DASA will educate the prospective MPO on application requirements, and will assign an internal point of contact. In DASA's experience, the time from first contact to approval of the MPO can vary between three and six months.

Responsibilities of the authorisation holder

(n) Responsibilities of a MPOA holder are presented at DASR 21.A.165. Amongst other things, the MPOA holder is required to:

1. maintain the production organisation in conformity with the data and procedures approved for the production organisation approval
2. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority
3. determine that products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing DASR Form 1 - Authorised Release Certificate.

Superseded

Ongoing DASA compliance assurance

(o) Once an MPOA is achieved, DASA will commence ongoing MPO compliance assurance, to gain confidence that the MPO remains a professional and effective production organisation. While compliance with DASR is cornerstone to this confidence, DASA will also explore the broader safety outcomes that the MPO is achieving, for example how its SMS interfaces with other related platform SMS.

(p) Routine scheduled oversight visits will occur periodically, nominally every 24 months, however timings may be shortened dependent on information received from various sources indicating possible non-compliance including quality lapses.

(q) DASA's oversight processes for MPOs are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) 01-009, DASR Findings. Both are available on the DASA intranet site.

Appendix:

(a) Production Organisation Exposition Requirements

Superseded

(a) Where an aircraft production organisation is pursuing approval by DASA as a Military Production Organisation (MPO), DASA will rely extensively on the production organisation exposition to gain confidence that the organisation has the potential to provide professional aircraft production services. The information below provides an overview of the requirements of the exposition for MPOs; further information can be found in DASR 21.A.143.

(b) Pivotal to the exposition is a description of the Production Quality System that is to be employed by the MPO, which shows how the MPO intends to:

1. ensure their production of products, parts and appliances conform to the applicable design data and is in condition for safe operation
2. account for production input provided by other organisations
3. implement an effective Safety Management System (SMS)
4. implement an independent quality assurance function for confirming the adequacy of the documented procedures and monitoring compliance with those procedures.

(c) The exposition must specifically address, either directly or by reference to other documents, the organisational structure and key responsibilities, procedures and resources that will be employed by MPO, as summarised below.

(d) **Organisational structure and key responsibilities.** In addition to presenting the proposed MPO structure, the exposition will document the incumbents for the following roles: the Accountable Manager, and the following two individuals that are formally accepted by DASA via the issue of Form 4 - Acceptance of Nominated Management Personnel:

1. Responsible Manager (RM) of the Production Organisation - responsible for the production organisation's output
2. Quality Manager (QM) – responsible for the independent quality assurance function.

(e) **Procedures.** The exposition will document key MPO procedures for a range of functions, including production, compliance documents, independent quality monitoring, and accounting for external subcontractors and suppliers. It will also document the selection, training, ongoing competence and identification of certifying staff.

(f) In addition, depending on the specific roles of the MPO, the exposition may also present procedures for exercising assigned MPO privileges.

(g) **Resources.** The exposition will describe the available resources to support the provision of airworthiness production, including human resources, equipment, tools, facilities, production data, and so on.

Superseded

Annex G - Approved Maintenance Organisation

Purpose of the authorisation

(a) The DASR 145 – establish the requirements to be met by an Organisation seeking approval to perform aircraft maintenance activities; thereby completing the actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness.

(b) The requirements pertain to all aircraft maintenance organisations who seek to obtain a DASR 145 approval.

(c) An organisation that has been approved by DASA to provide aircraft maintenance services (including engines and components) for a Defence aircraft is termed an Approved Maintenance Organisation (AMO). These AMOs may be a Military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types.

DASR Requirements

(d) A Maintenance Organisation Approval may be granted by DASA when satisfied that the maintenance organisation complies with the requirements of DASR 145. The DASR presents eligibility criteria, requirements for the maintenance organisation, terms of approval, obligations and organisational privileges that are approved by DASA. It also specifically requires the organisation to establish and maintain an Aviation Safety Management System (ASMS), in accordance with DASR SMS.

(e) DASA's approval of an AMO is reflected on a DASR Form 3 – Approval Certificate and Schedule DASR 145, which summarises the terms of the approval, including:

1. Conditions: The conditions on which the approval is based
2. Approval Schedule: The scope of work for which approval is granted, ranging from a single class and rating with limitations to all classes and ratings limitations. These include aircraft, engines/auxiliary power unit (APU), components and specialised maintenance services
3. Limitations: Any limitations on the above
4. Exposition reference: DASA's Objective reference for the approved Exposition.

Applying for the authorisation

(f) DASA does not accept unsolicited applications for AMO approval; rather, a Defence capability need must be demonstrated before DASA will commence processing of DASR 145 approval applications. An application for a DASR 145 approval is made using a DASR Form 2 – *Application for DASR 145 Approval.*

(g) Per DASR 145.A.70, the primary application document is the Maintenance Organisation Exposition (MOE) (including any related procedures/documents), which specifies the scope of

Superseded

work deemed to constitute approval and details how the maintenance organisation intends to comply with the DASR 145 requirements. The MOE should cover four main parts:

1. The Organisational management part of the MOE, including organisational structure, key management personnel qualifications, duties and responsibilities and scope of work

2. The maintenance procedures detailing how the aircraft/engine/components will be maintained to the required standard and how aircraft components may be accepted from external sources

3. The quality system procedures including the methods of qualifying personnel (for example certifying staff, support staff and quality audit personnel)

4. Contracting procedures and paperwork.

(h) Appendix 1 provides further insight into DASA's expectations for a MOE.

(i) **DASA approval.** DASA approval of an AMO will consist of a desktop assessment of the MOE, including all referenced related procedures/documents that detail DASR 145 compliance and an on-site visit once the organisation has commenced work. The approval process involves a thorough evaluation of the organisation's facilities, scope of work, personnel and the qualification requirements of staff including training and authorisations. The organisation must also demonstrate that it has a quality management system in place, establishing maintenance procedures to ensure good maintenance practices and compliance with DASR 145 requirements.

(j) **Interaction and timing.** Where Defence decides to engage an organisation not yet approved by DASA, the Defence contracting organisation should engage with DASA well before a Request for Tender (or similar) is released. DASA will assist the contracting organisation explore its contract options and identify essential contract inclusions. DASA may also assist the contracting organisation with pre-contract assessments of the prospective AMO.

(k) Prospective AMOs should engage with DASA at the earliest opportunity after the formal decision awarding them as the preferred maintenance contractor is made. DASA will assign an internal point of contact who will be available to assist the prospective AMO with application requirements. In DASA's experience, the time from first contact to approval of the AMO can vary between three and six months.

Responsibilities of the authorisation holder

(l) Responsibilities a AMO holder is required to ensure:

1. all maintenance can be carried out to the standard required by DASR 145

2. the necessary resources are available to accomplish maintenance in accordance with DASR 145 to support the AMO approval

3. to establish and promote the safety and quality policy

4. maintain a MOE and maintenance procedures to remain a current description of the AMO

5. to notify the DASA of significant changes to the AMO to enable the DASA to determine continued compliance with DASR 145.

Superseded

(m) Once an AMO authorisation is achieved, DASA will commence ongoing AMO compliance assurance. These activities provide a measure of the regulated entity's compliance with the DASR and also act to provide a level of confidence that appropriate arrangements are in place to support the compliance of subordinate organisations with the DASR, ensuring they are effective.

(n) DASA compliance assurance is normally achieved through on-site visits, remote assessments, and ongoing monitoring. Summarised:

1. **On-site visits.** On-site visits may be informal or formal. Informal visits provide regulatory support, guidance and engagement with an organisation, while formal visits are used to conduct oversight and enforcement activities and to validate the management of previous DASR findings

2. **Remote assessments.** Remote assessments may be suitable if a visit to the organisation is not feasible for reasons such as security, health, budget and availability of personnel or the area to be assessed does not justify a full on-site visit. Business Intelligence and the use of Strategic Data techniques are often used to assist in the targeting of areas to be reviewed

3. **Ongoing monitoring.** DASA desk officers review an approved organisation's compliance through the conduct of various desktop evaluations and interviews to gain ongoing confidence in AMO performance without necessarily engaging the AMO.

(o) DASA's oversight processes for AMOs are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) SAPO 01-009, DASR Findings. These are available on the DASA intranet site.

Appendix:

1. Maintenance Organisation Exposition Requirements

Superseded

(a) Where a maintenance organisation is pursuing approval by DASA as an AMO, DASA will rely extensively on the MOE and any associated supporting procedures to gain confidence that the organisation can provide the maintenance services to the required standards.

(b) **Organisational Management.** The MOE management section shall identify the AMO organisational structure, the maintenance management personnel, including 'nominated personnel' to ensure all DASR 145 functions are covered as detailed under their respective duties and responsibilities. The following nominated management personnel are responsible for ensuring the AMO complies with the DASR 145 requirements and are formally accepted by DASA via the issue of a DASR Form 4 – Acceptance of Nominated Management Personnel:

1. Responsible Manager (RM)
2. Quality Manager (QM)
3. Non-Destructive Testing Responsible Level 3 (NDT Responsible Lvl 3).

(c) In addition, the organisation's intended scope of work must clearly show the range of work performed at each approved location and may include the following class and ratings that are appropriately limited by DASA to customise the approval to a particular AMO:

1. **Aircraft maintenance.** A category A class rating means the AMO may perform maintenance on the aircraft and any component (including engines/APUs) in accordance with (in accordance with) aircraft maintenance data or, if agreed by the DASA in accordance with component maintenance data, only whilst such components are fitted to the aircraft
2. **Engine maintenance.** A category B class rating means the AMO may perform maintenance on an uninstalled engine and/or APU and its components in accordance with engine and/or APU maintenance data or, if agreed by DASA in accordance with component maintenance data, only whilst such components are fitted to the engine and/or APU
3. **Component maintenance.** A category C class rating means the AMO may perform maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU
4. **Specialised maintenance services.** A category D class rating is only necessary if the AMO intends to provide the specialised maintenance service for another maintenance organisation (for example D1 NDT rating to release tasks using a DASR Form 1). An AMO with a class rating in A or B or C category may perform specialised maintenance tasks on products it is maintaining "in the course of maintenance" subject to the MOE containing procedures, without the need for a D class rating. These specialised maintenance tasks include and are not limited to, composite repairs, painting, welding, NDT.

(d) **Maintenance procedures.** The MOE maintenance procedures established by the maintenance organisation to ensure compliance to DASR 145.A.25 to DASR 145.A.95, that shall cover all aspects of performing the maintenance activities, including the provision and control of any specialised services, therefore setting the standards to which the maintenance organisation

Superseded

intends to work. These procedures should be held current in that they reflect best practice and remain an up to date description of the maintenance organisation.

(e) **Quality system procedures.** The maintenance organisation shall establish a quality system with procedures to ensure compliance to DASR 145 requirements, including performing independent audits to monitor compliance with required standards and to confirm adequacy of the procedures to enable the maintenance organisation to ensure it can deliver a safe product. These procedures shall cover all aspects of performing the quality activities, including defining the audit program and audit procedures, qualifying requirements for quality audit personnel and maintenance personnel (inspectors, certifying staff, support staff and specialised services staff).

(f) **Contracting procedures and paperwork.** This section should describe the procedures, paperwork and records associated with the CAMO/s that place tasks on the maintenance organisation. It is recommended to have a separate procedure for each CAMO.

Appendix V to DASR AMC 145.A.70 – is an additional resource developed in a check list format to facilitate a compliance check of the minimum expected content of the MOE.

Superseded

Annex H - Continuing Airworthiness Management Organisation

Purpose of the authorisation

(a) The DASR M – establish the requirements to be met by an Organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness, including the measures to be taken to ensure that airworthiness is maintained.

(b) The requirements pertain to all organisations who seek to obtain and retain a DASR M approval.

(c) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall be appropriately approved, in accordance with DASR M Subpart G, for the management of the continuing airworthiness of the aircraft it operates. An Operating Organisation that has been approved by DASA to provide aircraft continuing airworthiness management for a Defence aircraft (including engines and components) is termed a Continuing Airworthiness Management Organisation (CAMO). All ADF CAMOs are supplemented by a contracted Defence Industry organisations and may encompass one or multiple aircraft types.

DASR requirements

(d) A CAMO Approval may be granted by DASA when satisfied that the organisation complies with the requirements of DASR M. The DASR presents eligibility criteria, requirements for the organisation, terms of approval, obligations and organisational privileges that are approved by DASA. It also specifically requires the organisation to establish and maintain an Aviation Safety Management System (ASMS), in accordance with DASR SMS.

(e) DASA's approval of an CAMO is reflected on a DASR Form 14 – Approval Certificate and Schedule DASR M, which summarises the terms of the approval, including:

1. Aircraft type/series/group: the scope of work for which approval is granted, ranging from a single aircraft type/model/series to multiple aircraft types
2. Privileges: privileges include arranging for any of the continuing airworthiness management tasks to be carried out by another organisation, development and control of Aircraft Maintenance Program, performance and extension of Airworthiness Reviews
3. Contracted organisations performing continuing airworthiness tasks on behalf of the CAMO shall be listed in the application and form part of the CAMOs Quality Management System
4. Exposition reference: DASA's Objective reference for the approved Exposition.

Applying for the authorisation

(f) An application for a CAMO approval shall be made in accordance with DASR M.A.702 using a DASR Form 2 – Application for DASR M Subpart G Approval. This application Form shall be sent directly to DASA for assessment.

Superseded

(g) Upon receipt of the package, DASA shall acknowledge the application and check the submission for eligibility and completeness. When incorrect or incomplete information is supplied, DASA shall notify the applicant as soon as possible detailing the omissions and errors. In case of refusal of an application, DASA shall notify this decision in writing to the applicant together with the reasons leading to that outcome.

(h) Per DASR M.A.704, the primary application document is the Continuing Airworthiness Management Exposition (CAME) (including related procedures/documents), which specifies the scope of work deemed to constitute approval and details how the organisation intends to comply with the DASR M requirements. The CAME should cover five main parts:

1. Organisational details such as locations, facilities, management structure, including key management personnel qualifications, duties and responsibilities and a list of nominated Form 4 holders

2. Continuing airworthiness management procedures detailing how the continuing airworthiness tasks for the aircraft (including engine/components) are carried out

3. Quality Management System and procedures to ensure that the organisation remain in compliance with the DASR M requirements, including the monitoring functions and conduct of independent audits of all DASR M.A Subpart G activities

4. Details about organisational interdependencies including operating organisations for which the CAMO provides services, and other contracted/tasked organisations responsible to support the CAMO during the delivery of continuing airworthiness management services.

5. Airworthiness review procedures shall encompass all the tasks and activities necessary for determining the airworthiness status of an aircraft based on a documented review of its records and a physical survey.

(i) To summarise, an initial application package for a CAMO approval should include:

1. The DASR Form 2

2. The DASR Form 4

3. The CAME (including related procedures/documents);

4. The AMP(s) for aircraft managed by the CAMO

5. The Aircraft Technical Log used by the CAMO (if IT based, access should be provided);

6. Details regarding maintenance contracts/tasking with maintenance providers (DASR 145 or equivalent) where appropriate and organisations tasked to carry out Continuing Airworthiness functions on behalf of the CAMO (CAM Service Providers)

(j) Appendix 1 provides further insight into DASA's expectations for a CAME.

(k) **DASA assessment and approval.** DASA approval of a CAMO will consist of a desktop assessment of the CAME, including all referenced related procedures/documents that detail DASR M compliance. The approval process involves a comprehensive evaluation of the facilities, organisation scope, personnel, qualification requirements for staff, management of continuing airworthiness functions and management of Aircraft Maintenance Program and Airworthiness Review Process. The organisation must also demonstrate that it has a quality

Superseded

and safety management systems in place and procedures to ensure good practices and compliance with DASR M requirements.

(l) A review of the CAME is carried out utilising the DASR M Compliance Matrix. The assessment, carried out by DCA, uses the Present, Suitable, Operating and Effective (PSOE) methodology to identify that elements of the CAME are present and suitable to the scope, complexity and types of operations defined by the applicant (Refer to DASPMAN Vol. 3 Chapter 5.4). Based on the nature and quantity of any identified issues, a decision shall be made as to whether approval of the CAMO is recommended.

(m) Once an approval is recommended, a decision brief and CAMO Certificate (Form 14) is developed for signature by DG DASA. Where discrepancies with the CAME are identified, these shall be documented in the Decision Brief. DCA personnel will consider the issues that are documented in the decision brief and decide if raising findings is warranted using DASA Oversight and Enforcement (O&E) principles. This process is intended to establish agreement or otherwise with the issues that have been identified in the decision brief.

(n) Following signature of the decision brief and Form 14, the Form 2 application and certificate are forwarded to the CAMO.

(o) **Interaction and timing.** Prospective CAMOs should engage with DASA at the earliest opportunity after the Operator has appointed the organisation as responsible for the management of Continuing Airworthiness obligations. DASA will assign an internal point of contact who will be available to assist the prospective CAMO with application requirements. In DASA's experience, the time from first contact to approval of the CAMO can vary between three to six months.

Responsibilities of the authorisation holder

(p) A CAMO holder is required to ensure:

1. All continuing airworthiness management tasks can be carried out to the standard required by DASR M
2. the necessary resources are available to support the CAMO approval
3. to establish and promote the safety and quality policy
4. maintain a CAME and associated procedures in line with current CAMO practices
5. to notify DASA of significant changes to the CAMO to enable DASA to determine continued compliance with DASR M.

Ongoing DASA compliance assurance

(q) Once a CAMO authorisation is granted, DASA will commence ongoing CAMO compliance assurance. These activities provide a measure of the regulated entity's compliance with the DASR and also act to provide a level of confidence that appropriate arrangements are in place to support the compliance of subordinate organisations with the DASR, ensuring they are effective.

Superseded

(r) DASA compliance assurance is achieved through a range of methods including on-site visits, remote assessments, and ongoing monitoring. For further details regarding DASA Oversight and Enforcement methodology refer to DASPMAN Vol. 3 Chapter 5.4.

(s) DASA's oversight processes for CAMOs are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) SAPO 01-009, DASR Findings. These are available on the DASA intranet site.

Appendix:

(a) Continuing Airworthiness Management Exposition Requirements

Superseded

(a) Where an organisation is pursuing approval by DASA as a CAMO, DASA will rely extensively on the CAME and any associated supporting procedures to gain confidence that the organisation can provide the services to the required standards.

(b) The CAME (including procedure(s) as applicable) should identify full compliance to the applicable DASR M requirements. More specifically, the expected content of the CAME should follow the guidelines of AMC M.A.704.

(c) The CAME should be comprised of:

1. **General organisation details.** This section shall detail the CAMO enterprise, providing a brief description of the organisation, its structure, aircraft managed, fleet composition, personnel details including 'nominated management personnel, relationships with other organisations and ongoing administration arrangements of the CAME.

2. **Continuing airworthiness management procedures.** This section shall detail how the CAMO performs their continuing airworthiness functions. Categorically, the CAME should cover as a minimum, utilisation and management of continuing airworthiness records, development, amendment and approval of AMP, monitoring and analysis of the effectiveness of AMP, reliability program, accomplishment and control of Airworthiness Directives, non-mandatory modification embodiment policy, major repairs and modifications, defect reporting, pre-flight inspections, aircraft weight and balance management and maintenance check procedures.

3. **Quality system.** The CAMO shall establish a quality system with procedures to ensure compliance to DASR M requirements, including performing independent audits to monitor compliance with required standards and to confirm adequacy of the procedures to enable the safe delivery of continuing airworthiness management services. These procedures shall cover all aspects of performing the quality activities, including defining the audit program and audit procedures, qualifying requirements for quality audit personnel and CAMO personnel. In addition, the Quality system is expected to include the monitoring that maintenance is carried out by appropriately approved maintenance organisations (DASR 145 or equivalent), monitoring that contracted tasks are carried out in accordance with the contract/task order.

4. **Contracted/tasked maintenance.** This section should explain how a Maintenance Organisation is selected by the CAMO. Selection should not be limited to the verification that the Maintenance Organisation is appropriately approved for the type/ model/series of aircraft, but also that the Maintenance Organisation has the capacity and resources to undertake the required maintenance. This selection procedure should preferably include a contract/tasking review process in order to ensure that:

   i. the contract/tasking is comprehensive and that no gap or unclear area remains,

   ii. everyone involved in the contract/tasking (both at the CAMO and at the Maintenance Organisation) agrees with the terms of the contract/tasking and fully understand their responsibilities.

   iii. that functional responsibilities of all parties are clearly identified

Superseded

5. **Airworthiness review procedures (if applicable).** A CAMO seeking the privilege to manage and issue Military Airworthiness Review Certificates (MARC) should establish the working procedures for the assessment of the airworthiness review staff (experience, qualification and training), issuance, management and revocation of authorisations. Moreover, the section should describe how the document review and physical survey will be conducted, indicating the records to be reviewed, details to be reviewed and number of items to be sampled during the process. Additionally, this section should also cover how the MARC can be issued or criteria for extension, and ongoing management/retention of records.

6. **Appendices (as required).** Section may include:

   i. Sample documents used by the CAMO

   ii. List of airworthiness review staff

   iii. List of contracted organisations delivering CAM services to the CAMO (M.A.711(a)3)

   iv. List of contracted maintenance organisations, either DASR 145 or equivalent organisations (via Airworthiness Recognition)

   v. Details of functions being contracted to CAM services organisations

   vi. List of operating organisations to which the CAMO provides the management of continuing airworthiness

Superseded

Annex I - Maintenance Training Organisation

Purpose of the authorisation

(a) The Defence Aviation Safety Regulations (DASR) 147 – Aircraft Maintenance Training Organisation, establish the requirements to be met by an organisation seeking approval to conduct aviation technical training or military aircraft type rating training and examinations as specified in DASR 66 to be eligible for a Military Aircraft Maintenance Licence (MAML).

(b) An organisation that has been approved by DASA to provide maintenance training for a Defence aircraft is termed a Maintenance Training Organisation (MTO). An MTO may be a Military or Defence Industry organisation, located in Australia, and may encompass one or multiple military aircraft type ratings.

DASR requirements

(c) An MTO may be awarded by DASA when satisfied that the organisation complies with the requirements of DASR 147. The DASR presents eligibility criteria, requirements for either the Basic Knowledge or military aircraft type rating training, terms of approval, scope of approval and obligations. The MTO approval is an essential requirement for organisations that wish to provide approved maintenance training courses for Defence aircraft. The certification provides assurance that the organisation has the necessary facilities, resources and expertise to deliver high-quality training programs that comply with DASA safety standards.

Applying for the Authorisation

(d) DASA does not accept unsolicited applications for MDO approval; rather, there must be a Defence capability need for that MTO. An application for MTO approval is made via Form 12 - Application for DASR 147 Initial-Changes of Approval.

(e) Where an extant MTO is merely requesting an expansion of its current MTO approval, for example the addition of an aircraft type or an expanded privilege, the DASA assessment may be proportionately reduced. Applications for such changes are made via DASA Form 12A - Military Aircraft Type Rating Initial Change Course Approval.

(f) DASA's approval of an MTO is reflected on a Form 11 – Maintenance Training Organisation Approval Certificate, which summarises the terms of that approval, including:

1. Scope of approval: The type of aircraft maintenance training activities (Basic or Type) for which approval is granted
2. Category/Type: The specific Military aircraft types or category within the scope of the approval.
3. Conditions: Any requirements that are provisional to this approval
4. Limitations: Any limitations on the above.

(g) IAW DASR 147.A.140, the primary application artefact is the Maintenance Training Organisation Exposition (MTOE), which describes, directly or by cross-reference, the

Superseded

organisation, the relevant procedures and the products (or changes to products) to be trained. Furthermore, where partner organisations or subcontractors are to be employed, the MTOE also includes information on how the MTO is to ensure those organisations under their QMS comply with relevant DASRs.

(h) **DASA Approval.** DASA's approval of a new MTO will usually be based on a desktop assessment of the MTOE. Particularly where the candidate organisation is 'new' DASA may then conduct a deeper assessment, usually consisting an on-site visit, once the organisation has exercised and started to mature its maintenance training systems. The approval process involves a thorough evaluation of the organisation's facilities, training programs, training materials, personnel and the qualifications of its instructors. The organisation must also demonstrate that it has a quality management system in place to ensure that the training is delivered consistently and to a high standard.

(i) **Interaction and timing.** Where Defence decides to engage a new Industry MTO, the Defence contracting organisation should engage with DASA well before a Request for Tender (or similar) is released. DASA will help the contracting organisation explore its contract options and identify essential contract inclusions. DASA may also help the contracting organisation with pre-contract assessments of the prospective MTO.

(j) Prospective MTO should engage with DASA soon after the formal decision is made for them to take on that role. DASA will educate the prospective MTO on application requirements, and will assign an internal point of contact. In DASA's experience, the time from first contact to approval of the MTO can vary between three and six months.

Responsibilities of the authorisation holder

(k) Responsibilities of a MTO approval are required to:

1. ensure that all instruction and examinations carried out by the MTO meet the standards required by the DASA, and
2. maintain the MTOE in conformity, ensuring that the necessary finance, human resources and facilities are available and conform to the requirements of DASR 147 as stipulated by the DASA.
3. all necessary Airworthiness data published by the DASA and aircraft manufacturers as appropriate, is made available and course material is updated accordingly.

Ongoing DASA compliance assurance

(l) Once an MTO approval is achieved, DASA will commence ongoing MTO compliance assurance, to gain confidence that the MTO remains a professional and effective training organisation.

(m) DASA compliance assurance is normally achieved through on-site visits, remote assessments, and ongoing monitoring. Summarised:

1. **On-site visits.** On-site visits may be informal or formal. Informal visits are usually to provide regulatory support and guidance, and for engagement with an organisation, while formal visit are used to validate the management of previous DASA findings and to conduct oversight which may result in new findings.

Superseded

2. **Remote assessments.** Remote assessments may be suitable if a visit to the organisation is not feasible for reasons of security, health, budget and availability of personnel or the area to be assessed doesn't justify a full onsite visit. Business Intelligence and the use of Strategic Data techniques are often used to assist in the targeting of areas to be reviewed.

3. **Ongoing monitoring.** DASA desk officers may identify other ways of gaining ongoing confidence in MTO performance without necessarily engaging the MTO.

(n) DASA's oversight processes for MTO are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) 01-009, DASR Findings. Both are available on the DASA intranet site.

Appendix:

(a) MTOE Requirements

Superseded

(a) Where a maintenance training organisation is pursuing approval by DASA as a Maintenance Training Organisation (MTO), DASA will rely extensively on the Maintenance Training Organisation Exposition (MTOE) and associated supporting documentations to gain confidence that the organisation has the potential to provide professional maintenance training services.

(b) **Organisational structure and key responsibilities.** In addition to presenting the proposed MTO structure, the MTOE will document the incumbents for the following roles: the Accountable Manager confirming that the MTOE and any associated manuals conforms to MTO's compliance with this DASR and shall be complied with at all times and ensures necessary resources to provide effective training. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement. The following three individuals that are formally accepted by DASA via the issue of Form 4 - *Acceptance of Nominated Management Personnel:*

1. Training Manager - responsible for monitoring and coordinating the training needs in the organization, selection of instructors and design, plan, and implement training programs, policies, and procedures to fulfil those needs.

2. Examination Manager – responsible for determining the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. Development of examination materials, administering and grading exams, maintaining exam records, ensuring examination process complies with the regulatory requirements. Ensures the integrity, effectiveness and continuous improvement of the examination process so that students receive fair and accurate evaluations of their skills and knowledge.

   Note: *Per AMC 147.A.105(a), the larger MTO (an organisation with the capacity to provide training for 50 students or more) should appoint a training manager with the responsibility of managing the MTO on a day-to-day basis. Such person could also be the Accountable Manager. In addition, the MTO should appoint a quality manager with the responsibility of managing the quality system as specified in DASR 147.A.130(b) and an examination manager with the responsibility of managing the relevant DASR 147 Subpart C or Subpart D examination system. Such person(s) may also be an instructor and/or examiner.*

3. Quality Manager - responsible for establishing an independent quality management system to monitor compliance with DASR 147 requirements, managing any observed non-compliances and proposing corrective actions necessary for eliminating and recurrence of non-compliance. Development of policies, procedures and processes to ensure that the training provided meets the required standards and is of high quality.

4. Instructor – responsible for delivering the training programs to students. They must have the necessary qualifications and experience to provide effective training and must also stay current with the latest industry developments.

5. Practical Assessor – responsible for determining the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. Ensures that students have the required knowledge and skills to perform maintenance

Superseded

tasks competently on aircraft and that they can apply this knowledge in a practical setting. Provide feedback to students on their performance and make recommendations for improvement.

6. Invigilator – responsible for supporting candidates whilst maintaining examination integrity. Ensures that the exam is conducted fairly and in a secure and conducive environment.

(c) **Facilities and Equipment.** The MTO must have appropriate facilities and equipment to support the training programme, including classrooms, workshops and aircraft maintenance equipment.

(d) **Curriculum and Syllabus.** The MTO must develop and maintain a curriculum and syllabus to support learning objectives and outcomes that meets the requirements of DASR 66. To ensure that the course curriculum remain current with the manufacturer's certified standards, the MTO must regularly review and update the course materials as needed. To ensure that the course materials remain effective, the MTO should seek feedback from students, instructors, SMEs and other stakeholders in the aviation industry to identify areas for improvement and innovation.

(e) **Training Procedures.** The MTO must have documented procedures for all aspects of the training process, including admission requirements and student evaluation.

(f) **Quality Management System.** The MTO must have a QMS in place to ensure that training is delivered in a consistent and effective manner. It should include regular independent audits and reviews of training processes as well as ongoing training and professional development for instructors. Must have a process for continually evaluating and improving the training programme to ensure it meets the evolving needs of the military aviation industry. Must comply with all relevant regulations and standards set by DASA to obtain and maintain the MTO approval.

(g) **Examination and Assessment.** The MTO must have a system in place for assessing student performance and providing feedback. This should include written and practical exams as well as evaluations of student performance during on-the-job training.

Superseded

Annex J - Military Type Certificate Holder Organisation

Purpose of the authorisation

(a) Every Type certified platform operating in the ADF requires an entity to hold the issued Military Type Certificate (MTC) and undertake holder obligations relating to continued airworthiness. This function ensures the continued airworthiness of the platform through its lifecycle. At a platform sustainment level supporting capability, the role of the holder is to ensure the platform remains consistent with its type certification basis and to facilitate design implementation (repairs, capability upgrades, safety rectification) with support from one or more aircraft design organisations. This is enabled through links back to the Original Equipment Manufacturer (OEM) who have the type design data. Other functions where the holder is critical is the provision of technical risk advice and assessment to the Operator where the inherent level of safety is compromised or an elevated level of risk may/does exist against the type.

(b) An organisation that has been assessed by DASA to undertake the MTC holder obligations is termed a Military Type Certificate Holder (MTCH) organisation. In the DASR construct, the nominated MTCH is nominally the System Program Office (SPO) that will manage the capability for the Capability Acquisition and Sustainment Group (CASG).

DASR requirements

(c) A MTCH organisation may hold an MTC when DASA is satisfied that the organisation complies with the requirements of DASR Part 21 Subpart B. The relevant DASRs describe the eligibility criteria, including requirements for a supporting arrangement with an appropriate design organisation (or multiple such organisations) with access to type design data.

Applying for the Authorisation

(d) DASA will not authorise a MTCH organisation where an MTC has either not been issued or is not expected to be issued.

(e) The primary application artefact is the Type Continued Airworthiness Exposition (TCAE), which describes, directly or by cross-reference, the organisation and the relevant procedures for the undertaking of holder obligations. Furthermore, where partner organisations and/or subcontractors are inherent to the MTCH arrangement, the TCAE will also describe how the MTCH organisation proposes to collaborate with their design organisations to execute the obligations. Appendix 1 describes DASA's expectations for a TCAE.

(f) **DASA Approval.** DASA's assessment of a MTCH organisation is based on a desktop assessment of the TCAE in concert with an on-site readiness review where the candidate organisation has been newly formed. DASA will then follow-up the initial approval through the regular oversight and enforcement functions.

(g) **Interaction and timing.** Prospective MTCH organisations should engage with DASA soon after the formal decision is made for them to take on that role. DASA will educate and guide the prospective MTCH through eligibility requirements, and will assign an internal point of contact.

Superseded

(h) **Existing MTCH organisations.** DASA has not yet finalised its approach to authorising existing MTCH organisations. This is scheduled to be completed in 2024.

Responsibilities of the authorisation holder

(i) The responsibilities and obligations of a MTCH holder are described in DASR 21.A.44. For a comprehensive description on these, refer to DASPMAN Volume 3 Section 7.

Ongoing DASA compliance assurance

(j) DASA will carry out periodic oversight and enforcement (O&E) of the MTCH organisation to gain confidence that the MTCH remains effective in undertaking their obligations. While compliance with DASR is fundamental, DASA will also explore the broader safety outcomes that the MTCH is achieving, for example how the organisation supports the CAMO/MAO or co-ordinates system safety working groups.

(k) DASA compliance assurance is normally achieved through on-site visits, remote assessments, and ongoing monitoring. Summarised:

1. **On-site visits.** On-site visits may be informal or formal. Informal visits are usually to provide regulatory support and guidance, and for engagement with an organisation, while formal visit are used to validate the management of previous DASA findings and to conduct oversight.

2. **Remote assessments.** Remote assessments may be suitable if a visit to the organisation is not feasible for reasons of security, health, budget and availability of personnel, or the area to be assessed doesn't justify a full onsite visit. Business Intelligence and the use of Strategic Data techniques are often used to assist in the targeting of areas to be reviewed.

3. **Ongoing monitoring.** DASA desk officers will identify other ways of gaining ongoing confidence in MTCH performance without necessarily engaging the MTCH directly. This may include, for example, monitoring the quality of MTCH applications (F31a, MPTFs), unsafe condition minimisation/rectification, and/or intelligence received from other DASA directorates and independent Review Boards. Intelligence on MTCH effectiveness in real-time will also be increasingly assessed as data mining methods mature.

(l) DASA's oversight processes for MTCH are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote) and DASA(I) 01-009, DASR Findings. Both are available on the DASA intranet site.

Appendix:

(a) Type Continued Airworthiness Exposition Requirements

Superseded

(a) For a SPO to be assessed as a MTCH, DASA will rely extensively on a TCAE that provides confidence that the organisation has the necessary processes/systems and arrangements in place to undertake the holder obligations as well as some additional DASR specific requirements associated with MTC holder duties.

(b) The information in this appendix provides an overview of the requirements of the TCAE for a MTCH; further information can be found in Acceptable Means of Compliance (AMC) to DASR 21.A.14(c). Additionally, DASA is currently developing a system for evaluating TCAEs that will underpin the MTCH authorisation.

(c) The TCAE should describe the MTC holder's management system and arrangements for executing their continued airworthiness obligations for the platform type. The TCAE should broadly cover the following areas[1]:

1. **Introduction.** The TCAE shall provide some context covering platform, certification history/genesis, certification basis, description of relevant foreign frameworks/ operators and any other platform nuances that contextualises the ADF type.

2. **Organisational Structure.** The TCAE shall outline the organisational structure of the MTCH and the key support organisations (e.g. the MDO), how the MTCH interfaces with supporting organisations and eligibility requirements under DASR 21.A.14. This section should also describe the interfaces with foreign framework arrangements and how access to type design data is secured. This is further described in DASPMAN Volume 3 Section 7.

3. **Assigned Responsibilities.** The TCAE shall describe key responsibilities associated with the MTCH functioning including those of their design support network. Where partner organisations and/or subcontractors are utilised, the TCAE shall describe how the MTCH organisation proposes to collaborate with their design organisation(s).

4. **Procedures.** The TCAE shall document key procedures for a range of functions covering how the MTCH intends to carry out the holder obligations under DASR 21.A.44. This should include any processes that propose an Alternative Means of Compliance (AltMoC) to meeting the holder obligations or privileges the MTCH may be eligible for under DASR 21.A.263.

5. **Resources** The TCAE shall describe the available resources through a supporting design service that has access to type design data. This can be either local MDOA support and/or through to a foreign OEM or service.

6. **Compliance Matrix.** As a means to detail how the MTCH organisation meets the applicable DASR obligations, a compliance matrix may be presented clearly outlining the regulatory requirements of the MTCH organisation and how the organisation complies with or proposes to meet each requirement (e.g. by referring to the

DASR Ref	Reg Name	Requirement	MTCH Org addressment summary or means of compliance	Procedure/Form Ref	Document Version/date
21.A.2					
21.A.3A					
21.A.3B					
21.A.4					

Superseded

7. **Internal Governance.** The TCAE shall describe internal governance arrangements within the MTCH, and external arrangements between the MTCH and any support organisations.

8. **Hazard Management.** The TCAE shall describe the internal communication channels, regular safety forums, working groups and systems in place across the broader platform enterprise to manage and communicate ongoing hazards and risks.

(d) Finally, documents constituting TCAEs are not “approved” by DASA. Rather, they are MTC holder’s document(s), and are intended to be working documents that could be expanded to reflect arrangements for subsequent MTC changes, MSTC issues, and major repair design approvals.

Superseded

Annex K - Military Type Certificate

Purpose of the authorisation

(a) A Military Type Certificate (MTC) is issued by DASA to certify that an aircraft design is safe for the intended Defence operations. It is the outcome of a program demonstrating aircraft type design data complies with designated airworthiness requirements.

(b) An MTC is only applicable to Defence registered aircraft. All Defence registered aircraft must have an MTC. An MTC is required before an aircraft's first flight, however for some new aircraft where certification hasn't been completed yet, initial flight operations may commence under a Military Permit to Fly.

(c) The safety inherent in an aircraft design is demonstrated to the authority by the applicant showing evidence to the authority that the design meets certain airworthiness requirements. These airworthiness requirements are derived from recognised certification codes and Defence specific supplementation from the Defence Aviation Safety Design Requirements Manual. The set of applicable airworthiness requirements, termed the Type Certification Basis (TCB) is agreed between the applicant for the authorisation and the authority. The TCB must account for Defence's intended usage of the aircraft and thus the Statement of Operating Intent and Usage (SOIU) is required before a TCB can be agreed upon. Military Certification Review Items (MCRI) are used to document supplementation of the airworthiness requirements in the TCB to account for Defence's intended usage.

(d) The MTC certification only considers airworthiness (safety) requirements, and will not cover capability requirements, thus functionality of mission systems is not normally covered within the scope of an MTC (Other than to demonstrate it is safe to operate).

(e) The MTC is accompanied by a Type Certificate Data Sheet (TCDS) which provides a concise definition of the configuration of the aircraft and includes the condition, limitations, and restrictions necessary to safely operate the aircraft. The TCDS also includes reference to the approved operating instructions (The Aircraft Flight Manual) as well as approved maintenance instructions (Instructions for Continued/Continuing Airworthiness)

(f) In order to show the authority evidence of compliance to the TCB, the applicant for a MTC authorisation completes a certification programme. This programme is agreed with the Authority through the Certification Programme Plan (CPP). The CPP forms the pivotal agreement between the authority and the applicant and is a requirement for MTC approval. The CPP documents agreement to the TCB (and applicable airworthiness requirements), as well as the means by which the applicant will show compliance and how the authority will confirm compliance has been achieved.

Applying for the authorisation

(g) An application for a MTC can be achieved through notifying DASA in writing of the intent to apply, otherwise the submission of the first version of the Certification Programme Plan (CPP) will be taken as the initial application. A final application for a MTC is also to be provided in writing to DASA and shall address the requirements of DASR 21.A.21. An application is valid for five years (unless otherwise agreed) to ensure that the standards used to establish the TCB remain current.

Superseded

(h) **DASA approval.** DASA's approval of a new MTC is based on an assessment of the evidence of compliance against the requirements of the TCB. DASA may also establish a Level of Involvement in the certification program that requires DASA to assess the acceptability of compliance demonstration evidence prior to finalisation of the certification programme by the applicant.

(i) **Interaction and timing.** A schedule for achieving issuance of a MTC will be agreed with DASA via the CPP. The CPP is a living document with major certification milestones included in the schedule that are updated as necessary.

(j) DASPMAN Volume 3 Section 7 provides further information on the Type Certification process.

Holding the authorisation

(k) MTCs are normally issued to a Government organisation who is responsible for ensuring the obligations associated with the authorisation are carried out. Once a MTC is issued by DASA, compliance assurance is achieved through oversight and enforcement activities as they relate to the MTC holder obligations. Major Changes to Type Design, Major Repairs, Military Permits to Fly and Occurrence Reports can also provide regular opportunities for DASA to assess the performance of the MTCH.

Superseded

Annex L - Military Restricted Type Certificate*

Superseded

Annex M - Military Supplemental Type Certificate

Purpose of the authorisation

(a) A Military Supplemental Type Certificate (MSTC) is issued by DASA to approve a Major Change to Type Design where it is undesirable to have the change approved as a change to the existing Military Type Certificate (MTC). Under the DASRs there are four reasons an application for a MSTC may be made:

1. To manage a subfleet where one or more aircraft in a fleet are intended to be configured or operated in a significantly different manner to the remainder of the fleet.

2. To manage a change that involves a distinct change to the Type Certification Basis (TCB). Generally this will be the result of reliance on prior certification which has adopted a different Primary Certification Code (PCC) than the original MTC. While the change to the PCC may be able to be managed via Military Certification Review Items (MCRIs), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

3. To encompass large and complex changes. While the process for review and approval of a major change to the existing MTC or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. To ease management from the perspective of the Military Type Certificate Holder (MTCH). This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTCH to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

(b) A MSTC is usually issued to a Military Type Certificate Holder (MTCH) organisation, which for the ADF context is a government System Program Office (SPO). The MTCH has obligations to ensure they remain eligible to hold the MSTC. A MSTC is required before the aircraft is authorised for flight authorisations subsequent to incorporation of the modification covered by the change to type design.

Applying for the authorisation

(c) An application for a MSTC can be made through notifying DASA in writing of the intent to seek issue of a MSTC. This can be achieved by submitting a DASR Form 31, otherwise the submission of the first version of the Certification Programme Plan (CPP) will be taken as the initial application. An application is valid for five years (unless otherwise agreed) to ensure that the standards used to establish the TCB remain current.

(d) In addition to the information required by DASR 21.A.93(b), the application must specify whether the certification data has been prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

(e) A final application for a MSTC should be made using a DASR Form 31a.

Superseded

(f) **DASA approval.** DASA's approval of a MSTC must be to an eligible applicant and based on an assessment of the demonstration of compliance against the requirements of the TCB[1]. Where the applicant has specified that it has provided certification data on the basis of an arrangement with the owner of the type-certification data, the MTC holder must have indicated it has no technical objection to the information submitted in the application, and must have agreed to collaborate with the MSTC holder to ensure discharge of all obligations for continued airworthiness of the changed product.

(g) **Interaction and timing.** A schedule for achieving issuance of a MSTC will be agreed with DASA via the CPP. The CPP is a living document with major certification milestones included in the schedule that are updated as necessary.

(h) DASPMAN Volume 3 Section 7 provides further information on the Major Change Certification process.

Holding the authorisation

(i) MSTCs are normally issued to a Government organisation who is responsible for ensuring the obligations associated with the authorisation are carried out. Once a MSTC is issued by DASA, compliance assurance is achieved through oversight and enforcement activities as they relate to the MSTC holder obligations. Major Changes to Type Design, Major Repairs, Military Permits to Fly and Occurrence Reports can also provide regular opportunities for DASA to assess the performance of the holder.

Superseded

Annex N - Military Permit To Fly

Purpose of the authorisation

(a) A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

(b) Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk (ELOR) that may require an MPTF:

1. Flight Test, for either for new aircraft development or modification to existing aircraft, or to support role expansion activities. This includes both the OEM-centric scenarios conducted under DASR 21J and/or 21G privileges, as well as development, compliance demonstration and/or flight test using Defence-registered, Military Air Operator (MAO)-controlled aircraft.

2. Flights where the design has not yet been certified and/or Military Certificate of Airworthiness (MCoA) is yet to be issued. This includes operation of new aircraft prior to awarding of a Military Type-Certificate (MTC) or operation with major design modifications fitted prior to award of a Military Supplemental Type-Certificate (MSTC).

3. Flights where the aircraft is not conforming to the Type Design. Predominately this includes ferry flights to suitable maintenance venues when damaged beyond approved limits (and un-repaired damage assessment is not an option), operation with overdue scheduled maintenance requirements not completed, and for operation outside of the bounds of Instructions for Continuing Airworthiness (ICA), including operational limits.

(c) Hence, an MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80. An MPTF facilitates military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input. Importantly, MPTFs should not be continually extended/reissued, nor considered an enduring authorisation to address TCB non compliances. In these instances, alternate approaches should be pursued as discussed in DASPMAN Volume 3 Section 7.

DASR requirements

(d) An MPTF is issued by DASA (including Delegates of the Safety Authority (DoSAs), within the scope of their delegation) when satisfied that the application complies with the requirements of DASR Part 21 Subpart P Military Permit To Fly. Per DASR 21.A.707(b), the application must include the purpose of the flight (and in particular, the capability imperative), the ways in

Superseded

which the aircraft does not comply with its TCB or MAOC Operations Specification (OpSpec), and the approved flight conditions necessary for safe operation of the aircraft.

(e) Per DASR 21.A.708, the flight conditions include the configuration of the aircraft for which the MPTF is requested, any condition and/or restriction necessary for safe operation of the aircraft and the substantiation that the aircraft is capable of safe flight under the conditions and/or restrictions. Given that an MPTF constitutes operations at an ELOR, the determination of safe flight should eliminate safety hazards and risks So Far As is Reasonably Practicable (SFARP), or if it is not reasonably practicable to do so, minimise these hazards and risks SFARP. This is achieved by following the seven-step risk management process, as outlined in GM to DASR SMS.A.25(b)(2)(2.2). DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program provides further aviation-specific guidance and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011.

Applying for the authorisation

(f) **MAOs**. In the Defence context, the applicant for an MPTF will typically be the MAO. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, continuing airworthiness management organisation (CAMO) service providers, flight test organisations, and/or relevant maintenance organisations.

(g) The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted concurrently. Relevant DASR Forms for the applicant are as follows:

1. **DASR Form 18b.** Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.
2. **DASR Form 21**. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

(h) Specific detail of the information and supporting documentation required to complete DASR Form 18b - Application for Approval of Flight Conditions and DASR Form 21 - Application for a Military Permit to Fly is provided in the instruction sheets covering the forms. See also DASR 21.A.707, 21.A.708 and 21.A.709.

(i) **DASA approval.** Upon receipt of an application(s), DASA[1] will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. Moreover, in order to approve the flight conditions and the associated MPTF, DASA must be satisfied that the aircraft is capable of safe flight under the specified conditions and/or restrictions (i.e. risk controls). DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-

Superseded

proceed with the identified ELOR; however the decision-to-proceed always remains with the applicant. When assured, DASA utilises the following form:

1. **DASR Form 20a.** Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

(j) MPTFs will typically be issued to MAOs, who are then responsible for discharging the obligations of the holder of an MPTF.

(k) **Interaction and timing.** To support DASA approval of MPTFs (along with other priorities) as much notice as possible allows for prioritisation, adjustment if necessary and independent assurance of a credible and defensible position. That said, emerging and exigent circumstances may prevail in support of a capability imperative, which may necessitate short-notice MPTF applications to be submitted to DASA for approval. In these circumstances, it is still important to provide DASA with as much notice as possible, and in particular, that the application is completed to a suitable standard (to avoid the need for rework).

(l) Further detail for flight conditions and MPTFs is provided in Chapter 7.5 and DASA AC 003/2018 - Risk Management in the Defence Aviation Safety Program.

Responsibilities of the authorisation holder

(m) Responsibilities of an MPTF holder are presented at DASR 21.A.727. Amongst other things, the MPTF holder is required to ensure that all the conditions and/or restrictions associated with the MPTF are continuously satisfied and maintained.

Ongoing DASA compliance assurance

(n) Once an MPTF is issued by DASA, compliance assurance is achieved through oversight activities as they relate to the holder obligations.

(o) DASA's oversight processes are contained in the DASA Instructions: DASA(I) SAPO 01-002 - DASA Oversight (On-Site and Remote), DASA(I) SAPO 01-009 - DASR Findings and DASA(I) IINV 03-001 - Assurance of Reportable Occurrences. These are available on the DASA intranet site. See also Chapter 5.4 for further information.

Superseded

Annex O - Military Certificates of Airworthiness

Purpose of the Authorisation

(a) An MCoA is an aircraft operating authorisation issued against an aircraft tail that has the purpose to validate that the aircraft conforms to the type design as specified on the Military Type Certificate (MTC). It serves as the final assurance artefact that the aircraft is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the aircraft on the Australian Defence register, and has ensured conformity through meeting various requirements.

DASR requirements

(b) An Operator organisation may hold an MCoA when DASA are satisfied that the requirements of DASR Part 21 Subpart H have been met. To enable eligibility, the relevant DASRs describe the criteria that must be verified to enable issue.

Applying for the Authorisation

(c) MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 - Military Certificate of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

(d) An application for an MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/ or their CAMO are eligible to be applicants for an MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR), do not have a corresponding DASA Military Type Certificate and therefore cannot be issued a MCoA.

(e) An MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[1], per DASR.21.A.174(a). When considering an MCoA application, the Authority will consider all documentation in support of the state of the aircraft at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

(f) The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

(g) For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 17 and 18 of this section.

Superseded

Issue of an MCoA

(h) An MCoA can only be approved and issued if any modifications, repairs and/or production deviations implemented on the aircraft are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

(i) For new aircraft being delivered to Defence originating from a civil derivative, the acquisition project should seek a civil export CoA, via the prime aircraft OEM, where there is a civil Type Certificate (TC) in place via the relevant Civil Aviation Authority (CAA). This export CoA can form a foundation for the issue of an Australian MCoA.

(j) For instances where Defence is leasing/acquiring an aircraft that has been in civilian use, the requirement for an export CoA should still be sought from the applicable CAAs. If the lease is of a continuous nature that will not warrant transfer to the Defence register, then Defence will need to gain sufficient evidence to confirm that the extant civil CoA remains valid and that the aircraft has remained in a controlled environment. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

(k) Where national regulations allow ownership (either nationally or to another State/Nation) of a Defence registered aircraft to be changed, the Authority should be engaged as early as possible for specific advice. Such ownership changes may be allowed in certain circumstances.

Responsibilities of the Authorisation Holder

(l) The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. An MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry1. An MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

(m) Additionally, the ongoing validity of an MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

(n) The validity of an MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA.

(o) The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If an MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate DASR authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[1].

Useful References

(a) DASA Website (Content relating to MCoAs)

(b) DASR Form 25a - Application for Certificate Of Airworthiness

Superseded

(c) DASR 21 - Aircraft Design, Production and Certification

(d) DASR M - Continuing Airworthiness Management https

Superseded

Annex P - Military Restricted Certificate of Airworthiness*

Superseded

Annex Q - Australian Military Technical Standard Order

Purpose of the authorisation

(a) An Australian Military Technical Standard Order (AUSMTSO) authorisation may be awarded to organisations for the production and design of an article[1] to a Technical Standard Order (TSO). A Technical Standard Order (TSO) allows the streamlining of integration of parts and appliances into the type design of a product. The TSO is an airworthiness specification detailing the minimum safety performance standard for a specified article.

(b) The AUSMTSO authorisation represents one way (and not the only way) to have parts and appliances approved. This is an optional step which ensures that a part or appliance complies with a minimum performance standard. Receiving an AUSMTSO authorisation is not an approval to install and use the article in the aircraft. Rather, it means that the article meets the specific TSO and the holder is authorised to manufacture it.

(c) AUSMTSO authorisations are often awarded to organisations that design and manufacture common items that are fitted onto multiple aircraft types, for example: avionics line replaceable units, wheels, tyres, batteries, seat belts, lights, etc. Rather than those items having to be separately certified as part of each aircraft type design they are to be used on, the AUSMTSO article can be incorporated into the type design provided it meets the relevant type certification basis elements of the product. This then allows different manufacturers to apply for an authorisation to design and produce those items, provided they meet the minimum safety and performance standards as set out in the TSO.

(d) In general, DASA will recognise items certified to either European Aviation Safety Agency (EASA) or Federal Aviation Administration (FAA) TSOs for integration into Defence products. DASA may also promulgate its own AUSMTSO performance standards and issue associated authorisations.

DASR requirement

(e) DASR 21 Subpart O, AUSMTSO – establishes the requirements for authorisation, application, obligations and privileges that apply to organisations seeking AUSMTSO authorisations. The AUSMTSO authorisation holder must show that the design of the article meets the standards in the AUSMTSO, and that the production of the article is assured under the Defence Aviation Safety Program (DASP).

(f) For production of the article, an applicant for AUSMTSO authorisation must hold:

1. a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G; or
2. a Letter of agreement under DASR 21 Subpart F.

(g) For design of the article, an applicant for AUSMTSO authorisation must:

1. use procedures for the specific design practices and activities necessary to comply with DASR 21 Subpart O, or for Auxiliary Power Units (APUs) show it holds a Military Design Organisation Approval (MDOA), under DASR 21 Subpart J;
2. show compliance of the article with the TSO;

Superseded

3. declare compliance via Declaration of Design and Performance (DPP) - this is the central summary document containing the definition and all relevant references of the article. Its informational content could be compared to the one of a Type Certificate Data Sheet for products. In the DDP the applicant is required to state that the article is designed, tested and manufactured in compliance with the applicable sections of DASR 21; and

4. carry out the continued airworthiness obligations for the item (DASR 21.A.609).

Applying for the authorisation

(h) Application for an AUSMTSO authorisation can be made to DASA using DASR Form 34 - Application for Australian Military Technical Standard Order (AUSMTSO) Authorisation by the Accountable Manager of the organisation with appropriate evidence to support the application.

(i) The applicant must declare compliance of the item through a declaration of design and performance. The Declaration of Design and Performance (DDP) is required with the application and is to contain information per DASR 21.A.608.

(j) **DASA approval.** DASA's AUSMTSO authorisation is based on the applicant demonstrating its capability to produce and design the TSO article.

(k) DASA will issue an AUSMTSO authorisation when it is satisfied that the applicant has:

1. demonstrated its capability in accordance with DASR 21.A.602B (this may also include assessing the organisation for award of a Military Production Organisation Approval (DASR 21 Subpart G), Military Design Organisation Approval (DASR 21 Subpart J) or issue of a letter of agreement (DASR 21 Subpart F));

2. demonstrated that the article complies with TSO, and submitted the corresponding statement of compliance; and

3. stated that it is prepared to comply with ongoing obligations (DASR 21.A.609).

(l) DASA may also approve requests for the AUSMTSO authorisation holder to deviate from any performance requirements of the technical standards or airworthiness specifications in the AUSMTSO as per DASR 21.A.610. Any deviation from standards must be compensated by design features providing an equivalent level of safety.

Responsibilities of the authorisation holder

(m) The holder of an AUSMTSO authorisation must undertake continued airworthiness obligations listed under DASR 21.A.609. This includes keeping appropriate records; producing and maintaining manuals, and making these available to users and maintainers of the article; and having a system for collecting failures, malfunctions and defects.

(n) AUSMTSO authorisation holders may make minor design changes without further authorisation by DASA, and shall forward any revised data to DASA for compliance per DASR 21.A.611.

Superseded

(o) DASA will conduct an oversight program of all AUSMSTO authorisation holders to assure the continuing validity of their authorisation.

(p) AUSMTSO authorisation holders are responsible for the continued airworthiness of the article, in a similar manner that Military Type Certificate (MTC) holders are for a product.

Superseded

Annex R - Approval of Repair Design

Purpose of the authorisation

(a) Throughout the service life of a military aviation product (aircraft, engine or propeller), degradation (damage) of the systems/structures supporting safe flight and certification may be compromised through direct (accidental impact and battle damage) overload, normal wear and tear, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc.) environmental sources. Repairs are those actions developed and implemented to restore damaged products to the minimum airworthy state dictated by their respective Type Certification Basis (or equivalent) established at Initial Certification (or as supplemented/ tailored over time).

(b) The approval process ensures that the product the repair applies to will be returned to the risk inherent in the Type Certification Basis (or equivalent) as a result of the repair's incorporation. The scenarios under which repair data can be used and under which repairs are designed, approved and embodied can vary significantly depending on the organisations fulfilling the respective roles in the repair process. However, in terms of repair design approval, the fundamental principles applied to safety assurance considerations are the same regardless of the organisation performing them.

DASR requirements

(c) Data to be used in repairs may come through a repair design approval process where DASA is the certifying Authority (either approved by DASA or by an appropriately privileged organisation), or through a process where the recognition framework is used. The overarching DASRs governing the design development, approval and associated obligations as they relate to repairs to Australian Military Aviation Product are:

1. DASR 21 Subpart M: This Subpart establishes the procedure for the approval and classification of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals.

2. DASR 21 Subpart J: A Military Design Organisation (MDO) complies with the requirements ofDASR 21 Subpart J. The DASR presents eligibility criteria, requirements for a design assurance system, terms of approval, candidate privileges (approved at DASA's discretion), and obligations. It also specifically requires the organisation to establish and maintain a Safety Management System (SMS), in accordance with DASR.SMS

3. DASR M Subpart C: This Subpart at Section M.A.304 provides requirements for data to be used in repairs. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21 Subpart J. In each of these cases, DASA is the certifying Authority and the requirements of DASR 21 Subpart M are applicable.

Superseded

(d) **Approved by DASA:** Notification of an intended major[1] repair requiring DASA approval can be made using a DASR Form 31– Notification of Major Change/Major Repair. Submission of a DASR Form 31 initiates dialogue that enables DASA to guide the applicant through the major repair approval process

(e) A submission for a major repair must include a Certification Programme (CP) containing among other elements;

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made
2. an identification of all areas of the type design that are changed/affected by the repair, and
3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design with the Type Certification Basis (or equivalent)

(f) The requirement for a detailed CP is determined in consultation with DASA. In the case of major repairs, if long and complex compliance demonstration activities are deemed to not be required, the CP can be submitted in simplified form as part of the application. Application for approval of a major repair design should be made using a DASR Form 31b. (Refer to DASR 21.A.432C for details)

(g) DASA may grant the applicant relief from some or all showings of compliance if the repair design has been previously approved by a recognised CAA/MAA and is suitable for the Defence Configuration, Role and Environment (CRE) - Refer to GM 21.A.435(b) for details.

(h) **Approved by a privileged organisation:** An organisation awarded a privilege by DASA to approve repairs will execute those privileges within the constraints of the scope and limitations defined by DASA in the MDO Terms of Approval. The relevant procedures are defined in the MDO's Design Organisation Handbook (DOH). (Refer to DASR 21.A.263 for details).

Responsibilities of the authorisation holder

(i) Holder obligations apply to applications from (or on behalf of) Commonwealth organisations awarded the authorisation, or DASR 21J MDOA organisations making approvals under privilege. Responsibilities of a holder are presented at DASR 21.A.451(a) and (b) for a major repair and minor repair respectively. Amongst other things, the holder is required to:

1. establish a system for reporting failures, malfunctions and defects of major repairs
2. propose to DASA corrective actions, where those failures, malfunctions and defects of major repairs constitute an Unsafe Condition being subject to an Airworthiness Directive (AD)
3. ensure collaboration between the design organisation and the production organisation as necessary

Superseded

4. provide at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair (or any subsequent update to the repair), to any operator of the affected product incorporating the repair.

5. retain all relevant repair design information at the disposal of DASA and in order to provide the information necessary to ensure the continued airworthiness of the repaired product.

Ongoing DASA compliance assurance

(j) Once a repair design is approved by DASA or an appropriately privileged organisation, DASA compliance assurance is achieved through Oversight and Enforcement activities as they relate to holder obligations and the ongoing safety of individual repair designs. These two aspects effectively are encompassed by:

1. periodic compliance assurance of MDOA organisations and MTCH organisations, either through on site visits or remote assessments to gain confidence in the effectiveness of the systems in place to meet the requirements of DASR 21.A.451

2. DASA safety assurance of Reported Occurrences as they pertain to approved repair designs

(k) DASA's oversight processes are contained in the DASA Instructions, DASA(I) SAPO 01-002, DASA Oversight (On-Site and Remote),DASA(I) 01-009, DASR Findings and DASA(I) IINV 03-001 (Assurance of Reportable Occurrences) Available on the DASA intranet site.

Superseded

Annex S - Airworthiness Directive*

Superseded

Annex T - Aircraft Maintenance Programme

Purpose of the authorisation

(a) An Aircraft Maintenance Programme (AMP) is an authorisation issued against a single tail or fleet of aircraft. The document describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

DASR requirements

(b) An Operator organisation is accountable for the continuing airworthiness of the aircraft they operate and shall ensure that no flight take place unless the maintenance of the aircraft is performed in accordance with the applicable AMP. DASR M.A.302 and Appendix I to AMC M.A.302 describe the criteria and content of an AMP.

Applying for the authorisation

(c) The AMP and any subsequent amendments shall be approved by DASA. Notwithstanding, a CAMO may perform changes to the AMP, if granted the privilege by DASA, under an indirect approval[1] procedure established by the CAMO as part of their CAME submission.

(d) The CAMO is responsible for the development and management of the AMP for the aircraft managed including any applicable Reliability Programme (RP) and shall present the AMP and its amendments to DASA for approval, unless covered by indirect approval procedure.

(e) An application for an AMP shall be made to meet the minimum standards specified in DASR M.A.302 by an eligible organisation via a DASR Form 42 - Application for Initial Approval and Approval of Variation(s) to Approved Aircraft Maintenance Programme. In the Australian Defence context, the CAMO is eligible to be the applicant for an AMP on behalf of the MAO.

(f) When reviewing an AMP application, DASA will consider all documentation in support of the programme and associated document dependencies, including applicable RP.

DASA approval

(g) Upon receipt of a request for initial approval or variation to an existing platform AMP, DASA will initiate the task and engage with CASG RAMP team[2] to secure SME support throughout the process. For changes and updates to the AMP that are within the indirect approval privilege held by the CAMO, DASA assessment will not be necessary. However, the updated AMP shall be submitted to DASA to assure that changes were executed within indirect approval privilege and update DASA AMP records.

(h) A review of the AMP should be carried out utilising the AMP and RP Compliance Matrix designed to cover the requirements of DASR M.A.302 and Appendix I to AMC M.A.302. The assessment, carried out by DASA and RAMP teams, uses the Present, Suitable, Operating, and Effective (PSOE) methodology to identify that elements of the AMP are present and suitable

Superseded

to the scope, complexity and types of operations defined by the applicant. Based on the nature and quantity of any identified issues, a decision shall be made as to whether Approval of the AMP is recommended.

(i) Where issues with the AMP are identified, DASA will consider the issues and decide if raising findings are warranted using O&E principles. This process is intended to establish agreement or otherwise with the issues that have been identified.

(j) AMP approval is provided to the CAMO.

Interactions and timings

(k) For AMP submissions, DASA and RAMP staff will conduct a review of the document for completeness. If insufficient data is provided, DASA will contact the CAMO to discuss additional requirements.

(l) In the case where the AMP application may affect aircraft structural integrity or propulsion system integrity, specialist engineering input within DASA may be required.

(m) For AMP applications it is advisable that applicants engage with DASA as early as possible as the review process and approval has a turnaround time of approximately 4 months.

Responsibilities of the authorisation holder

(n) The CAMO is responsible for the continuing validity of the AMP and associated RP. The AMP shall be subject to periodic reviews (at least annually) and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience, directions from DASA, new and/or modified Instructions for Continuing Airworthiness (ICA) promulgated by the MTCH and any other organisation that publishes such data in accordance with DASR 21.

(o) When granted indirect approval privilege under DASR M.A.711(d) the CAMO shall appoint a maintenance program approval employee (MPAE) to approve aircraft maintenance programs, or variations to an approved maintenance program.

(p) The MPAE should be experienced in the development, management of a maintenance program for aircraft that are the same, or of a similar type, as the aircraft for which the employee is authorised and shall meet the minimum QT&E requirements of DASR AMC M.A.706(f).

(q) MPAE shall be authorised by the CAMO, in writing, to approve a maintenance program and/or variations to a maintenance program on behalf of the CAMO in accordance with the procedures detailed in the CAME.

Ongoing DASA compliance assurance

(r) Once an AMP is approved by DASA, compliance assurance will be achieved through CAMO oversight and enforcement activities. Consistent with PSOE methodology, DASA will assess that elements of the AMP are operating and effective to the scope, complexity and types of operations defined by CAMO.

Superseded

(s) Through oversight and enforcement DASA can ascertain as whether the CAMO is meeting their obligations of conducting regular reviews of the AMP to ensure validity and use of indirect approval privilege.

(t) DASA's oversight processes related to CAMO approvals are contained in the DASA Instructions:

1. DASA(I) SAPO 01-002 - DASA Oversight (On-Site and Remote)

2. DASA(I) SAPO 01-009 - DASR Findings. These are available on the DASA intranet site

Useful References

(a) DASR Form 42 – Application for Initial Approval and Approval of Variation(s) to Approved Aircraft Maintenance Programme

(b) DASR M – Continuing Airworthiness Management

(c) DASP Manual Volume 3 Chapter 6.6 – Structural and Propulsion System Integrity

(d) DASP Manual Volume 3 Chapter 7.2.5 - Instructions for Continuing Airworthiness (ICA)

Superseded

Annex U - Uncrewed Aircraft System Operating Permit

Purpose of the authorisation

(a) An Uncrewed Aircraft System Operating Permit (UASOP) enables the relevant Command/ Group Head within Defence to authorise the operation of an Uncrewed Aircraft System (UAS) under the DASR UAS Specific Type A category.

(b) The UASOP is a permit issued by DASA approving UAS operations that exceed the specified limitations and requirements of Open and Specific Type B category and cannot meet the requirements of certified category. The UASOP considers the full spectrum of risks associated with those operations and lists out the limitations and requirements to be met. DASA issues the permit to the relevant Command/Group Head on completion of a compliance assessment against relevant DASRs.

DASR requirements

(c) DASR UAS presents eligibility criteria for Defence UAS operating under the Specific Type A category. In order to support the full spectrum of Specific Type A UAS operations, the DASR UAS regulations include scalable hazard and administrative controls that DASA will require on a case-by-case basis, including:

1. the type of registration (whether on a local or Defence register)
2. whether a Statement of Operating Intent and Usage (SOIU) is required
3. initial and continuing airworthiness requirements
4. whether the operation must be conducted by a Military Air Operator (MAO)
5. the level of compliance required against the Standard Rules of the Air
6. Remote Pilot qualifications
7. UAS operating requirements and limitations.

(d) DASA will issue a UASOP when satisfied that the applicant complies with DASR UAS requirements outlined in the Uncrewed Aircraft System Operator Compliance Statement (UOCS), DASR Form 152. For higher-risk UAS operations, the DASR UAS requirements are likely to be closer to that of crewed aircraft, whereas for lower-risk UAS operations (still within the Specific Type A category), requirements will be commensurately lower. The applicant may propose compliance requirements for DASA approval. However, DASA will ultimately determine the final set of requirements as outlined in paragraph 3.

(e) DASA will issue the UASOP via DASR Form 153 – Uncrewed Aircraft System Operating Permit[1]. The UASOP will include:

1. the UAS type(s) that DASA authorised to operate and the registration requirements
2. the validity period of the UASOP
3. the approved operating areas and airspace

Superseded

4. any requirements or limitations placed on the UAS

5. any management and support requirements, including any requirements to comply with DASR ARO.100, DASR ORO.10 and AMC UAS.30B (4)

6. detailed Initial and Continuing Airworthiness requirements, where necessary

7. UASOP management requirements, such as managing changes to operating scope or the UAS Configuration, Role and Environment (CRE), among other elements.

Applying for the approval

(f) An application for a UASOP is a multi-step process:

1. Firstly, the applicant notifies DASA of an upcoming UASOP application via a DASR Form 151.

2. Secondly, DASA develops a tailored list of DASR requirements that the applicant must comply with, documented in a DASR Form 152.

3. Thirdly, the applicant completes their bespoke DASR Form 152 with evidence and references.

4. Finally, DASA develops and approves a bespoke UASOP, via a DASR Form 153—and distributes this Form 153 to the applicant.

(g) Submission of DASR Form 151 – Notification of Upcoming UASOP Submission is the initial step. This provides DASA sufficient information to determine if a UASOP is the most appropriate mechanism for the particular UAS operation and to begin the process of developing a bespoke set of DASR requirements for the applicant. Importantly, DASR Form 151 provides a means for the applicant to engage DASA and begin planning activities required to achieve the requirements of DASR UAS.

(h) As per GM2 UAS.30.B, normal practice would be for the UASOP applicant to propose a suitable extent of compliance for DASA approval. The applicant may choose to propose tailoring to a DASR Form 152 – UAS Operator Compliance Statement (UOCS), for DASA to assess. Applicants should first await DASA confirmation from their submission of DASR Form 151 to ensure they address areas of concern prior to the development of a Form 152. The preferred approach is for DASA to tailor the DASR Form 152 (in consultation with the applicant).

(i) Based on the information provided to DASA in the DASR Form 151, DASA may direct the following:

1. Defence Registration (DASR Part UAS.10.D) – DASA will determine whether Defence registration is required after considering internal policy decision criteria. These criteria may include[2]:

   i. the ownership of the platform (such as whether the UAS will be owned by or operated on behalf of Defence)

   ii. the operational nature of the UAS (such as whether the UAS is considered expendable, what equipment is on-board, whether the UAS will be operated overseas)

Superseded

iii. the platform's ongoing maintenance and continuing airworthiness program

2. Adding a UAS to the Defence Register invokes the requirement for an SOIU (IAW DASR ARO.50).

3. Complying with MAO requirements IAW DASR ARO.100 (DASR UAS.30.B.4. refers). As part of the DASR Form 152 development, DASA will direct the compliance requirements. Before operation of a UAS under Specific Type A, the MAO applicant must submit a Form 139a to update their Operations Specifications (OpSpec).

DASA approval

(j) DASA will base initial approval or update of a UASOP on a program that may range from a desktop assessment of the submitted compliance demonstration evidence (detailed within the DASR Form 151 and contained within DASR Form 152), to iterative on-site assessments, oversight and other activities. DASA may conduct on-site visits prior to the approval of a UASOP as part of its education and assurance efforts.

(k) Where an extant UASOP requires expansion or amendment (e.g. the removal of imposed limitations due to the applicant providing new compliance evidence), applicants must submit a DASR Form 154 – UOCS Request for Variation. DASA will assess the request, applying rigour proportionate to the change requested.

UASOP withdrawal

(l) A UASOP will be withdrawn when either:

1. the applicant advises DASA that the operation of the UAS under the Specific Type A category is no longer applicable

2. DASA determines that the MAO Accountable Manager (AM), or Command/Group Head authorising the operation of a UAS can no longer ensure the operation in accordance with the conditions of the UASOP.

(m) The MAO AM or Command/Group Head should address a minute to DG-DASA, including evidence to demonstrate that operators have been instructed to cease operations under the UASOP. DASA will provide a minute back to the relevant AM to confirm the UASOP has been withdrawn.

(n) The MAO AM or Command/Group Head should advise whether the withdrawal of the UASOP impacts on any Defence registration requirements. The MAO AM or Command/Group must apply to DASA to remove a UAS from the Defence Register. Guidance on applying to remove a UAS from the Defence register is available at DASPMAN Volume 3 Chapter 6.1.1.

Interaction and timing

(o) A Defence organisation bringing on a new UAS capability should engage DASA early in the acquisition life cycle to allow DASA to provide support and guidance to ensure acquisition and planning decisions are compatible with DASRs. While DASR UAS does not require UAS to operate within a fixed category from acquisition, the decisions made during acquisition may affect the operational flexibility afforded to the capability.

Superseded

(p) Prospective UAS operators are encouraged to engage DASA before making formal decisions on a new UAS capability to ensure giving consideration to likely future DASR requirements. DASA may educate the UAS organisation on the UASOP requirements and can appoint an internal contact.

(q) The UASOP process, from initial contact to issue of the permit, can vary from six months to multiple years depending on the complexity of the operation. Early engagement with DASA generally correlates with a quicker UASOP turnaround.

Responsibilities of the authorisation holder

(r) Once approved, the UASOP details the responsibilities of a UASOP holder. The UASOP is only the permit providing Command/Group Head the ability to authorise operation of a Specific Type A UAS. Among other things, throughout the UASOP validity period, the UASOP holder is required to:

1. ensure key staff are appointed and competent
2. manage OIP changes, and where required, request a variation to the UASOP
3. ensure operation of the UAS is within the requirements and limitations as specified in the UASOP.

Ongoing DASA compliance assurance

(s) On approval of a UASOP, DASA may conduct ongoing compliance assurance activities to gain confidence that the UAS organisation is meeting the requirements of DASR UAS and the requirements and limitations included on the UASOP.

(t) DASA UAS compliance assurance is nominally achieved through the following:

1. **Oversight and on-site assurance.** DASA may conduct on-site assurance activities for UAS organisations. Formal visits are usually part of oversight activities and may investigate compliance with DASRs, UASOP requirements and limitations, and internal OIP. DASA may also use oversight activities to validate the management of any prior findings and to conduct other oversight activities. DASA will tailor activities using a risk-based approach. UAS organisations may also request a DASA visit for educational purposes. DASA may provide incidental regulatory advice and education.
2. **Initial approvals (including desktop assessments).** DASA predominantly conducts desktop assessments of UAS organisations in considering UASOP approvals. The DASA UAS team conducting these assessments are usually from DAVNOPS, DIA and DCA, although DAVENG may provide specialist engineering assurance as required. DASA may also conduct desktop assessments in preparation for more complex on-site audits.

Appendix:

(a) Summary of UASOP Form Suite

Superseded

(a) UASOP are the approval mechanism for a variety of operations, from small platforms that exceed published limitations and requirements in DASR UAS.35 standard scenarios and Open category, to much larger experimental platforms or platforms that are unable to meet the criteria for Certified category.

(b) Use the following DASA forms to obtain an approved UASOP.

Form 151 – Notification of upcoming UASOP submission

(c) **Purpose.** The DASR Form 151 presents DASA with advice that an organisation seeks to operate a UAS under a UASOP. The form extracts from the applicant the UAS operating intent, to validate that a UASOP is the most appropriate approval mechanism. The form also highlights elements the applicant must consider to begin the development around the risk controls, operating requirements and limitations that will be required for the operation, assuring that they are developed commensurate for the operation. The information presented in the DASR Form 151 by the applicant enables DASA to provide direction back to the applicant on the extent of compliance expected with DASR UAS.30 (b) requirements, or at least initial expectations and/or guidance.

(d) **Content.** The DASR Form 151 contains the following:

1. rationale by the applicant for the UASOP
2. a summary of the UAS capability
3. an outline of the UAS operating environment and intent
4. a description of the operating organisation
5. timelines and other pertinent information.

(e) **DASA assessment.** DASA will confirm receipt of the DASR Form 151 to the applicant via a response email and will begin the tailoring of a DASR Form 152 based on the submission details. The email will provide DASA points of contact as well as a timeframe to expect a formal response from DASA.

(f) **Approving authority.** The capability Sponsor or Group/Command Capability Manager must sign the DASR Form 151.

Form 152 – UAS Specific Type A Operations Compliance Statement

(g) **Purpose.** The DASR Form 152 is the tailorable UAS compliance assurance framework. This document assures DASA that the UAS organisation has the commensurate requirements in place to support the UAS operation under a UASOP.

(h) **Content.** The DASR Form 152 comprises four sections:

1. **Scope of operations.** This section will offer guidance back to the applicant around what sections are DASA directed, eg registration requirements.
2. **Risk controls and assessments.** This section provides DASA the opportunity to review the applicant's risk management.

Superseded

3. **Regulatory compliance.** This section clarifies which DASR requirements, outside of DASR UAS, are applicable to the operation.

4. **Description of the organisation.** This section focuses on requirements for non-MAO and MAO entities.

(i) **DASA Assessment.** An applicant may present a draft Form 152 to DASA for acceptance (generally submitted by a mature aviation organisation). Alternatively, DASA will develop the DASR Form 152 (in consultation with the applicant organisation).

(j) **Approving authority.** The DASR Form 152 is a document that will have multiple reviews in its draft state. The capability Sponsor or Group/Command Capability Manager signs the final DASR Form 152 when it is ready. The signatory is normally the same appointment that signed off on the DASR Form 151.

Form 153 – Uncrewed Aircraft System Operating Permit

(k) **Purpose.** DASA develops the UASOP based on an assessment of the applicant's compliance demonstration evidence and applicable risk controls.

(l) **Content.** The UASOP holds the following information:

1. the UAS model(s) authorised to operate and registration requirements
2. the UASOP validity period
3. the approved operating areas and airspace
4. any requirements and limitations placed on the UAS
5. any management and support requirements, including any requirements to comply with DASR ARO.100, DASR ORO.10 and AMC UAS.30B(4)
6. detailed Initial and Continuing Airworthiness requirements, if applicable
7. UASOP management requirements, such as managing changes to operating scope or the UAS Configuration, Role and Environment (CRE), among other elements.

Form 154 - Request for Variation

(m) **Purpose.** Applicants must submit a DASR Form 154 to DASA to seek changes to an extant UASOP.

(n) **Content.** The DASR Form 154 comprises the following sections:

1. rationale for change (including reference to the extant UOCS and UASOP)
2. specific line item changes
3. applicant's declaration.

(o) **DASA assessment.** DASA will tailor the assurance assessment process to the extent of the proposed change, and the risk of the proposed operation. This may involve conduct of a number of assurance activities (audits, reviews, desktop assessments) or be as simple as a desktop assessment of the final submission. A successful UASOP update relies on the submission of suitable evidence.

Superseded

(p) **Approving position.** The capability Sponsor or Group/Command Capability Manager must sign the Form 154 prior to submitting to DASA. The signatory is normally the same appointment that signed off on the DASR Form 151 and DASR Form 152.

Superseded

Annex V - Aerodrome Certificate

Purpose of the authorisation

(a) To support safe aircraft operations at Defence aerodromes, DASA released DASR 139 - Aerodromes regulations. These regulations require all Defence aerodromes to be classified as Certified or Non Certified. For those aerodromes requiring certification, DASR 139.80 outlines the activities an Applicant (the Aerodrome Operator – AD OPR) needs to undertake to attain an Aerodrome Certificate (ADC).

(b) Whilst the ADC provides approval for the Aerodrome to be classified as Certified, the certification process provides assurance to the AD OPR that they have indeed provided an aerodrome that comprehensively supports safe aircraft operations. Independent assurance and certification by DASA will provide Defence stakeholders with additional confidence.

DASR requirements

(c) DASR 139.80 in particular focuses on aerodrome design and construction, and supports responsible parties by:

1. identifying credible standards for the design and construction of Aerodromes, and applying defensible bounds to how far these standards can be tailored
2. presenting a structured approach to demonstrating that the final aerodrome design and construction meets those standards
3. requiring independent assurance (by DASA) of the above two outcomes.

(d) To achieve aerodrome certification and be awarded an ADC, an Applicant must undertake the following five primary activities:

1. define an Authority-agreed Certification Basis (CB) for the aerodrome.
2. demonstrate that the aerodrome design and construction complies with the agreed CB.
3. declare that the aerodrome design and construction complies with the agreed CB.
4. implement arrangements to support continued aerodrome compliance with the CB.
5. provide design information to support continuing safe operation of the aerodrome.

(e) Each of these mandated activities (and other supporting aspects) form the basis of the certification process developed by the Authority.

Applying for the authorisation

(f) An application to DASA for an aerodrome certificate should use DASA Form 1186 – Application for Aerodrome Certificate. There are multiple stages and artefacts required to support the Application for Aerodrome Certificate which are outlined in Chapter 11.2.

Superseded

(g) DASA will be available to support the Applicant throughout the certification process and provide guidance and feedback where needed. This will reduce the likelihood of an application being incomplete at the time of submission.

(h) **DASA approval.** DASA will issue an ADC based on satisfactory evidence that the design of the aerodrome complies with the aerodrome's CB, including all the technical data required for the certification program as well as compliance to the other requirements under DASR 139.80. Once an ADC has been issued, the Aerodrome Operator may submit an application for certified aerodrome approval, as described in Annex B of this DASPMAN Chapter.

Responsibilities of the authorisation holder

(i) As part of the aerodrome certification process, the Applicant is required to implement arrangements to support continued aerodrome compliance with the agreed CB and provide design information to support continuing safe flight operations of the Aerodrome. For the purposes of initial aerodrome certification, the Applicant is expected to establish these systems and procedures. Continued implementation and monitoring of these systems and procedures is the responsibility of the Aerodrome Operator. The ultimate liability for safe flight operations rests with the Aerodrome Operator.

(j) Responsibilities of an AD OPR operating a Certified Aerodrome are presented at DASR 139.90 – Maintenance of Aerodromes. Amongst other things, the AD OPR is required to:

1. present to the Authority any changes to the design or construction of a certified aerodrome for certification, except where those changes have no appreciable effect on the safety of flight operations.

2. develop, document and undertake an aerodrome maintenance program to ensure the aerodrome remains in a condition to support safe flight operations.

(k) **Changes to Aerodrome Certification.** Following presentation of any changes to the design or construction of a certified aerodrome for certification, an abbreviated certification program, applying some or all of the steps in the process, will be required. The program will focus on the changes to the certified design, and the complexity of the program will be influenced by whether the design changes:

1. will still maintain compliance to the extant CB. In this case, re-certification is likely to only require compliance to the CB be demonstrated and declared prior to application

2. will not maintain compliance to the extant CB. In this case, re-certification will require new or modified CB requirements to be approved prior to demonstrating and declaring compliance to the CB.

(l) **Aerodrome Maintenance Programs (ADMP).** An ADMP is required at Defence Certified Aerodromes to maintain continued compliance with the aerodrome's CB. The Defence AD OPR is responsible for the development, documentation and execution of the ADMP to ensure the aerodrome remains in a condition to support safe flight operations, as required by DASR 139.90.

(m) The ADMP also helps the AD OPR to ensure continued compliance to the CB by means of conducting required maintenance at the aerodrome. At a minimum, the ADMP should include (see AMC to DASR 139.90): the maintenance schedule and routines to ensure the aerodrome continues to meet the design requirements; technical inspections that confirm the facilities

Superseded

are fit for their intended purpose and acceptable for use; and the engagement of suitably qualified personnel to conduct maintenance.

Ongoing DASA compliance assurance

(n) Whilst it is the responsibility of the AD OPR to ensure continued compliance with the agreed CB in order to support continuing safe flight operations of the Aerodrome, DASA may from time to time initiate compliance review activities to provide ongoing assurance. These may be achieved through on-site visits, remote assessments or ongoing monitoring, summarised below:

1. **On-site visits.** On-site visits may be informal or formal. Informal visits are usually to provide regulatory support and guidance, and for engagement with an Aerodrome stakeholders, while formal visits are used to validate the management of previous DASA findings and to conduct oversight.

2. **Remote assessments.** Remote assessments may be suitable if a visit to the aerodrome if the area to be assessed doesn't justify a full onsite visit.

3. **Ongoing monitoring.** DASA desk officers will identify other ways of monitoring continuing compliance with the aerodrome's CB without necessarily engaging the AD OPR. This may include, for example, monitoring Continued Aerodrome Compliance products including Aerodrome Maintenance Programs, Aerodrome Technical Inspections, exploring the outcomes of other DASA review activities (eg Independent Review Boards), and so on.

Superseded

Annex W - Military Aircraft Maintenance License

Purpose of the personnel authorisation

(a) DASR 66 - Military Aircraft Maintenance Licencing establishes the requirements to be met by an individual within the Australian Defence Organisation (ADO), consisting of both the ADF and Department of Defence, seeking approval for privileges to issue a Certificate of Release to Service (CRS) for maintenance on military aircraft, within a DASR 145 approved organisation. As the regulatory authority, DASA will control and coordinate the issue, oversight and enforcement of licences under DASR 66.

DASR requirements

(b) DASR 66 identifies the skill, knowledge and experience requirements for each Military Aircraft Maintenance Licence (MAML) category and Military Aircraft Type Rating (MATR) within the ADO.

(c) The MAML is an attestation that the holder has met the DASR 66 skill, knowledge and experience requirements. In order to obtain a DASR 66 MAML the applicant requires:

1. Basic Knowledge (DASR 66.A.25), and
2. Basic Experience (DASR 66.A.30).

(d) To enable the MAML holder to issue a CRS following on-from aircraft maintenance at B and C category level, the licence must have a specific Military Aircraft Type Rating endorsement, and the holder must be authorised by the 145 AMO to operate within their approved quality system. In order to obtain a type rating, an applicant needs:

1. Type Training (Theory & Practical) (DASR 66.A.45), and
2. On the Job Training (OJT) for first MATR (DASR 66.A.45)

(e) There are four basic licence categories:

1. **Category A** – for minor scheduled and unscheduled maintenance, equating to those activities regularly carried out to operate aircraft in the Line maintenance environment. The Category A licence is a non-type rated licence and the privileges of a Category A licence are not applicable to Base maintenance.
2. **Category B1** – Being applicable to B1.1 (Aeroplane Turbine) and/or B1.3 (Helicopter Turbine) in the ADO, enabling the licence holder to perform scheduled and unscheduled aircraft structure, powerplant, mechanical systems and simple electrical systems maintenance. The B1 license also permits minor avionics maintenance (eg 'black box' changes, where no specialised GSE/GTE is required and requires only a simple test to determine serviceability).
3. **Category B2** – Being applicable to either Aeroplane Turbine or Helicopter Turbine aircraft and covers complex avionics and complex electrical maintenance, scheduled and unscheduled maintenance.

Superseded

4. **Category C** - is required for personnel who issue the Certificate of Release to Service following Base maintenance only.

(f) DASR 66 category B1, B2 and C licences are military aircraft type rated licences and permit the holder to CRS only on military aircraft types endorsed on their licence.

(g) MAML Exclusions (Limitations) and Inclusions (Extensions) are defined as follows:

1. Exclusions

   i. Limitations introduced on a MAML are exclusions from the certification privileges.

   ii. Limitations are a result of gaps in training.

2. Inclusions

   i. Extensions introduced on a MAML allow additional certification privileges.

   ii. Extensions are a result of additional training

Personnel Authorisation

(h) DASR 145.A.30 (g) and (h) requires any organisation maintaining military aircraft to have appropriate military aircraft type rated certifying staff, qualified as category B1, B2 or C in accordance with DASR 66.

(i) Individuals having undergone appropriate training can be authorised by a DASR 145 AMO to perform and Task Sign for simple maintenance on an aircraft or component to the standard required by the maintenance data. These individuals who conduct the maintenance and task sign for these activities, do not necessarily need a MAML.

Responsibilities of the authorisation holder

(j) MAML holders have a professional responsibility to ensure the maintenance they perform and certify, meets airworthiness requirements. MAML holders are expected to maintain currency of knowledge, develop and exercise good judgement and apply sound principles of technical decision making, within the scope of their privileges.

MAML Application Process

(k) Individuals seeking the initial award of a MAML category, or applying for a variation to an existing MAML, must apply to DASA using the latest DASA Form 19 or 19A (ADF ONLY), available from the DASA website. All applications must be submitted to DASA 66 Licensing via the group mailbox 'dasa.dcadasr66@defence.gov.au' along with all relevant supporting documentation.

(l) DASA are able to extract relevant qualification, training, experience and authorisation information for current ADF personnel from PMKeyS as supporting evidence to enable issuance of licences for eligible ADF maintenance personnel. However, there is no data repository for contractor personnel, with each company retaining their own records. Consequently, DASA is not able to automatically issue licences to Defence Industry contractor

Superseded

personnel, who will have to provide the supporting evidence when applying for licences or variations.

Form 19a Applications

(m) The DASA Form 19a is to be used for MAML applications for ADF personnel only, as the application is relying mainly on evidence contained in PMKeyS. Unit Quality Manager delegates must sign the declaration confirming that:

1. all records provided by the applicant(s) meet the requirements of DASR 66;
2. PMKeyS has been updated to include all relevant evidence
3. all QT&E records provided as evidence with the application have been sighted and have been certified true and correct; and
4. copies of records supporting the application are kept on the applicant's personal file(s) for verification by DASA staff if required.

Guidance information is contained in Page 1 of the DASR Form 19a.

Form 19 Applications

(n) All DASA Form 19 applications must be vetted and endorsed by the organisation's Quality Manager / delegate for accuracy, ensuring:

1. all relevant QTE is validated;
2. all QT&E records provided as evidence with the application have been sighted and have been certified true and correct;
3. all supporting records will be retained by the organisation.

(o) Submission must be in electronic format, to the dasa.dcadasr66@defence.gov.au group mailbox, scanned copies of the form will not be processed. Guidance can be found on the form to assist with completion of the form.

(p) In addition to the above Form 19 requirements, the applicant's Quality Manager or delegate is to ensure that:

1. if applicants are claiming recognition of other Aviation Maintenance Licences, e.g. CASA LAME, then a certified true copy must be attached to the MAML application;
2. for licence category training through DASA/CASA MTOs, the RPL assessment can be made against the DASR/Part 66 Module requirements or the MEA Aeroskills training package competency standards, within the units of competencies (UOCs).
3. non-Australian competencies/qualification to be used to apply for a MAML, a DASA/ CASA MTO RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outline the required theory and practical training requirements.
4. category training MTO's who conduct DASR/Part 66 basic knowledge examination requirements, are to ensure that the DASR 66.A.25 basic knowledge examination standard is to confirm 75% pass mark.

Superseded

5. Any practical maintenance experience recognition to meet DASR 66.A.30 (Basic Experience Requirements) must be provided with evidence of exercising the foreign licence and/or authorisation.

6. DASA/CASA MTO approval must include RPL for that country or pathway. (Refer CASA AC 147-02 - Approved Part 147 Training Organisations).

(q) For applicants with a CASR Part 66 issued licence, the DASR 66 MAML will be based upon the existing licence, but with DASA specific exclusions/inclusions.

(r) DASA will only accept assessments attained via approved/recognised DASA 147/CASA Part 147 organisations.

(s) Any Australian Vocational Education and Training qualifications prior to 2011 must be assessed and converted to meet DASR 66.A.25 Basic knowledge requirements by a DASA 147/ CASA Part 147 organisation to confirm 75% pass mark. Practical maintenance experience recognition may be gained with evidence of exercising any relevant authorisation.

Ongoing DASA compliance assurance

(t) A MAML can be made invalid by the Authority (Suspended / Revoked) IAW DASR 66.A.40 & DASR 145.A.35. This is managed IAW DASA Instruction DASA(I) SAPO 01-003.

Useful References

(a) Military Aircraft Maintenance Licence – DASR Form 26

Superseded

Annex X - Air Battle Management Operator

Superseded

5.4. Oversight and Enforcement

5.1 Introduction

(Reserved)

5.2. Aviation Safety Policy and Guidance

5.2.1 Introduction

5.2.1.1 This section describes the hierarchy of policy and guidance within the Defence Aviation Safety Program.

5.2.2 The DASP Manual

5.2.2.1 The DASP Manual is the central policy and guidance document within the DASP. It is issued by the Defence AA in three volumes:

1. Volume 1 *Requirements for the DASP* expands on Joint Directive 21/2021 to establish requirements for the implementation of the DASP; in particular:
    i. legal and governance arrangements
    ii. independent safety assurance
    iii. the Defence Aviation Safety Regulation
    iv. the independent investigation of accidents and incidents
    v. independent reviews of Aviation Safety.
2. Volume 2 *Defence Aviation Safety Regulation* establishes all requirements and provisions for the management of Aviation Safety by commanders and managers.
3. Volume 3 *DASP Guidance* provides an overview of the DASP and how its various elements collectively achieve the required safety objectives. Volume 3 also provides supporting information to promote understanding of concepts and processes spanning multiple requirements or provisions established through Volumes 1 and 2.

5.2.3 Defence Aviation Safety Regulation

5.2.3.1 The DASR are contained within DASP Manual Volume 2. Their structure and naming convention are based on those applied by CASA and EASA.

5.2.3.2 The DASR comprise:

Superseded

1. **General Requirements,** which define the scope and applicability of the DASR parts as well as establish requirements and provisions that are applicable to a significant proportion of regulated entities.

2. **DASR parts,** which are outcome based and specify requirements for each of the specifically regulated Aviation Safety topics. They may include associated supporting information in the form of Acceptable Means of Compliance (AMC) and Guidance Material (GM).

5.2.4 Regulatory Supporting Information

5.2.4.1 The AMC and GM embedded within the DASR are part of a broader range of supporting information published by DASA to promote understanding of, and compliance with, the regulations. All such supporting information is authoritative and does not mandate any action but may address regulatory requirements and provisions established elsewhere.

5.2.4.2 **Acceptable Means of Compliance.** AMC provides a generic and widely applicable approach to meeting the respective DASR requirements. DASA publishes AMC to provide certainty as to how the required safety outcomes may be achieved. Choosing to implement an AMC relieves the regulated entity of the burden of proving that the means of compliance achieves the intended safety outcome. The regulated entity demonstrates compliance with the DASR by appropriately implementing AMC. Regulated entities are free to propose Alternative Means of Compliance (AltMoC); however, the nature of Aviation Safety regulation means that the use of AltMoC may not be suitable in every instance.

5.2.4.3 **Guidance Material.** GM helps to illustrate the meaning of a requirement or provision in the DASR. It may provide relevant background, context or an explanation of the policy intent underpinning the respective regulation.

5.2.4.4 **Advisory Circulars.** Advisory Circulars (ACs) are typically issued to bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as AMC in the DASR. Examples include information regarding emerging Aviation Safety matters, information that enhances compliance understanding for existing regulation, or policy guidance for aviation issues that are not yet regulated but require further understanding.

5.2.4.5 **Factsheets.** Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

5.2.5 Design Requirements

5.2.5.1 Volume 1 of the DASP Manual requires DASA to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. DASA fulfils this responsibility through prescribing and interpreting the minimum requirements for the design of Defence aircraft, engines, propellers, and other aircraft-related systems and equipment that have an effect on aviation safety.

Prescribing design requirements

Superseded

5.2.5.2 DASA employs three foundational principles when prescribing design requirements for aviation safety:

1. DASA recognises the design requirements prescribed by several CAAs and MAAs as providing a sound foundation for the safe design of Defence aircraft and aircraft-related systems and equipment
2. DASA may prescribe supplementation to these design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment
3. DASA requires the conduct of a system safety program, to provide a robust means for identifying and analysing aviation hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

5.2.5.3 To provide assurance that safe flight is achieved through aircraft design, many CAAs/MAAs prescribe airworthiness design requirements, which are usually documented in an 'Airworthiness Code' (DASR 21.A.16A refers). An Airworthiness Code is a complete and consistent suite of design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. As the development and maintenance of an Airworthiness Code is a substantial undertaking, rather than define and publish its own Code, DASA recognises Airworthiness Codes prescribed by other CAAs/MAAs (i.e. DASA accepts that these Codes provide a safe foundation for aircraft and aircraft-related systems design).

5.2.5.4 DASA may recognise an Airworthiness Code when the Code as a minimum:

1. is prescribed by a recognised CAA/MAA
2. has demonstrated a sound safety record
3. prescribes a complete and consistent suite of airworthiness design requirements
4. is supported by associated guidance on how to achieve compliance with the airworthiness design requirements
5. is accessible, i.e. published by the CAA/MAA in a consolidated and easily accessed format.

5.2.5.5 While aircraft and aircraft-related systems/equipment designs developed to a DASA recognised Airworthiness Code should substantially meet the level of safety expected by Defence, supplementary airworthiness design requirements may need to be prescribed by DASA as a result of:

1. known inadequacies in the Code
2. novel features included in the proposed design that are not accommodated by the Code
3. proposed Defence-unique roles and/or operating environments that are outside the scope of the Code and/or
4. Defence policies or Australian legislated requirements not being covered by the Code.

5.2.5.6 Compliance with DASA-recognised Codes and prescribed supplementation is the principal means by which safe design of an aircraft and aircraft-related systems/equipment is achieved. However, in isolation, a standards-based approach may not provide a complete basis for certification of an aircraft, or approval of aircraft-related systems/equipment having an effect on aviation safety.

Superseded

Many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft or systems design features are likely to pose novel hazards, which are not catered for within the standard. As a result, in addition to compliance with design standards, DASA requires the conduct of a system safety program for aircraft designs.

5.2.5.7 System safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aviation safety hazards during the design process, and provide a management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

5.2.5.8 DASA prescribes supplementation to recognised Codes within a framework of 'essential' and 'recommended' design requirements. While essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. DASA, in consultation with the relevant capability manager where applicable, may approve an alternative design requirement in the following circumstances:

1. where analysis confirms the alternative design requirement achieves an equivalent level of safety
2. where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety or
3. where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

Interpreting design requirements

5.2.5.9 Like other MAAs, DASA accepts that tailoring of design requirements may be necessary to achieve essential military capability. Provided DASA concludes the proposed tailoring is judicious (i.e. that the tailoring represents good judgement or sense) in the ADF operational context, DASA may approve tailoring to the prescribed requirement. Certification or approval against the tailored requirement(s) would then be pursued by the applicant. Any proposed tailoring of design requirements by an applicant for type certification and/or design approval from DASA, which results in changes to prescribed safety criteria, must be supported by documented rationale that includes:

1. the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists
2. the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative
3. the applicant's characterisation of the delta between the prescribed standard and the tailored standard
4. the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta and
5. the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft or aircraft-related system/equipment, contextualised for ADF operations.

Superseded

5.2.5.10 Agreed tailoring, including any essential risk controls to achieve the defined level of safety, will usually be documented in a Military Certification Review Item (MCRI) or equivalent approved by DASA. Detailed MCRI guidance is contained in Section 7.2 Certification.

5.2.5.11 DASA may have two separate roles in the above process. First, as the repository of standards and certification expertise, DASA may advise the capability manager and applicant on how to wisely complete each step. Secondly, DASA needs to gain sufficient confidence in the conduct of the process to assure the Defence AA that the tailoring is indeed judicious. If this second role cannot be achieved, the tailoring of the prescribed requirement(s) cannot be approved and consequently certification or approval of the design would be precluded.

5.2.5.12 DASA also provides interpretation advice and direction on the intent and meaning of airworthiness design requirements, often but not exclusively related to:

1. the approval of tailored means of compliance for a design requirement
2. advice on the relevance of proposed design requirements to the design under consideration
3. advice on pragmatic tailoring of design requirements/standards.

5.2.5.13 The prescription and interpretation of design requirements and standards may be delegated to a Standards-Delegate of the Safety Authority (Standards-DoSA). The functions and responsibilities of DoSAs are detailed in Section 4.3.

Design requirements and WHS

5.2.5.14 Defence aircraft and aircraft-related systems/equipment can present a hazard to aircrew, other aircraft occupants, other airspace users, persons near or under the aircraft flight path, and maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

1. the aircraft design can promote a safe airborne workplace for aircrew and other occupants through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. improving crash survivability for aircraft occupants
    iii. implementing design controls for in-aircraft hazards that might injure aircraft occupants
    iv. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants
2. the aircraft design can promote the safety of persons near or under the aircraft flight path through:
    i. reducing the likelihood of a catastrophic in-flight mishap
    ii. reducing the ground impact energy (mainly relevant to uncrewed aircraft)
3. the aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:

Superseded

i. implementing design controls for aircraft hazards that might injure ground personnel

ii. implementing design controls for aircraft hazards that might affect the future health of ground personnel

iii. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

5.2.5.15 Importantly, DASA approval of prescribed design requirements for a Defence aircraft or aircraft-related systems/equipment, and proposed tailoring, does not constitute endorsement/ agreement of the determination that risk has been eliminated or otherwise minimised SFARP. Rather, this must remain a decision for the capability manager (or delegate), as does the enduring management of the residual risk due to the tailoring/alternative standard.

Defence Aviation Safety Design Requirements Manual

5.2.5.16 The Defence Aviation Safety Design Requirements Manual (DASDRM) is DASA's repository for recognised Codes, and associated prescribed supplementary design requirements, with respect to Defence aircraft and aviation support systems/equipment design.

5.2.5.17 The DASDRM prescribes design requirements for aircraft systems and functions, and aircraft support systems and equipment that have an effect on aviation safety, that are necessary to achieve safe flight in Defence's proposed Configuration, Role and Environment (CRE). It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

5.2.5.18 While capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight, robust design for capability and interoperability contributes to mission success, and therefore the safety of the crew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate.

5.2.5.19 The DASDRM comprises the following six sections:

1. Section 1 – Application of Airworthiness Design Requirements. This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.

2. Section 2 – Integrated Design Requirements. This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.

3. Section 3 – Aircraft System Design Requirements. This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems

Superseded

included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.

4. Section 4 – Uncrewed Aircraft Design Requirements. This section prescribes airworthiness design requirements for UAS.

5. Section 5 – Aircraft Support Systems. This section prescribes design requirements for non-aircraft systems and ground based equipment, where the systems/equipment have a direct effect on safe flight or aviation safety, such as aeronautical life support equipment, mission planning systems and aerial delivery.

6. Section 6 - Aerodrome Design Requirements. This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

5.2.6 Formal Regulatory Advice

Introduction

5.2.6.1 DASA may provide formal regulatory advice on any Defence Aviation Safety policy within its remit in order to assist with understanding and compliance. This section provides guidance on seeking such advice. Other queries, such as those concerning DASA business matters, availability of training, staff duties, contact details and updates to ongoing activities do not warrant a formal process and may be addressed through normal lines of communication.

When to make a formal request

5.2.6.2 Only certain types of queries warrant the application of a formal process. Such queries fall into the following broad categories:

1. requesting interpretation of DASR or other policy:
   i. where the intent is unclear
   ii. relating to a situation not explicitly covered by existing policy.
2. requesting advice regarding implementation of DASR or other policy, such as:
   i. whether a particular approach is compliant
   ii. applicability of policy to a particular activity.

Before making a formal request

5.2.6.3 DASA publishes a number of educational and promotional artefacts, which may answer a query without the need to request advice. See Section 5.2.4 *Regulatory supporting information* and the *Education and Promotion* page on the DASA web site.

5.2.6.4 The DASP Policy and Guidance Portal (PGP) contains a functional search engine that may assist in searching for specific terminology or phrases. Tips for navigation and searching are contained within the PGP User Guide.

How to make a formal request

Superseded

5.2.6.5 If formal regulatory advice is required, the preferred method to request advice is via a DASR Query Form (DQF). In the case of uncertainty as to whether a DQF is suitable, email dasa.dasr@defence.gov.au.

5.2.6.6 While an email or phone call directly to a desk officer may seem more efficient, it does not always result in appropriate DASA registration and oversight. Registration informs DASA which areas of policy may require review or additional educational material and builds traceability for future updates. Oversight of queries is important for managing and prioritising DASA workload and ensures that advice follows an appropriate approval process before release. Therefore, DASA reserves the right to redirect any query to written form.

Turnaround Times

5.2.6.7 DASA will negotiate and agree upon a turnaround time with the query initiator as the first action following receipt of a query. DASA will communicate any subsequent changes to that timeline to all involved parties when they become apparent.

5.3 Aviation Safety Authorisations

5.3.1 Purpose

5.3.1.1 The DASR make provision for DASA to issue a range of 'authorisations' if assured that the regulated community has met, and continues to meet, the requirements and constraints of the DASR. These authorisations may be in the form of certificates, permits, approvals or licenses.

5.3.1.2 This chapter presents an overview of each common aviation safety authorisation.

5.3.2 Aviation Safety Authorisations

5.3.2.1 DASA-issued authorisations can broadly be characterised as pertaining to organisations, products and/or personnel. These authorisations are as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Aerodrome Operator (ADOPR)
    iii. Air Cargo Delivery Service Provider (ACDSP)
    iv. Air Navigation Service Provider (ANSP)
    v. Air Battle Management Operator (ABMO)
    vi. Military Design Organisation (MDO)
    vii. Military Production Organisation (MPO)
    viii. Approved Maintenance Organisation (AMO)
    ix. Continuing Airworthiness Management Organisation (CAMO)
    x. Maintenance Training Organisation (MTO)

Superseded

xi. Military Type Certificate Holder (MTCH) (currently an implicit approval)

2. product authorisations:

i. Military Type Certificate (MTC)

ii. Military Restricted Type Certificate (MRTC)

iii. Military Supplemental Type Certificate (MSTC)

iv. Military Permit to Fly (MPTF)

v. Military Certificate of Airworthiness (CoA)

vi. Military Restricted Certificate of Airworthiness (RCoA)

vii. Australian Military Technical Standard Order (AUSMTSO)

viii. Approval of Repair Design

ix. Airworthiness Directive (AD)

x. Aircraft Maintenance Programme (AMP)

xi. Uncrewed Aircraft System Operating Permit (UASOP)

xii. Aerodrome Certificate (ADC)

xiii. Other[1]

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: DASA directly authorises certain management personnel within approved organisations. These are commonly referred to as 'Form 4 authorisations', since they are approved on DASA Form 4, Acceptance of Nominated Management Personnel. In the context of this chapter, those authorisations are considered to be part of the organisational approval process, so they are not listed separately here.

5.3.2.2 The type and scope of authorisations needed for a particular aircraft, aerodrome or air navigation service will depend on a range of factors, for example the involvement of other civil or military Aviation Authorities, the support arrangements implemented by Defence, and so on. These issues are explored elsewhere in this Manual.

5.3.2.3 Annexes A to X individually examine the authorisations listed in paragraph 3. Each annex explains the purpose of the authorisation, the relevant DASR requirements, applying for the authorisation, the responsibilities of the authorisation holder, and DASA's approach to compliance assurance.

Annexes:

(a) Military Air Operator

(b) Aerodrome Operator

Superseded

(c) Air Cargo Delivery Service Provider (To be issued)

(d) Air Navigation Service Provider (To be issued)

(e) Military Design Organisation

(f) Military Production Organisation

(g) Approved Maintenance Organisation

(h) Continuing Airworthiness Management Organisation

(i) Maintenance Training Organisation

(j) Military Type Certificate Holder

(k) Military Type Certificate

(l) Military Restricted Type Certificate (To be issued)

(m) Military Supplemental Type Certificate

(n) Military Permit to Fly

(o) Military Certificate of Airworthiness

(p) Military Restricted Certificate of Airworthiness (To be issued)

(q) Australian Military Technical Standard Order

(r) Approval of Repair Design

(s) Airworthiness Directive (To be issued)

(t) Aircraft Maintenance Programme

(u) Uncrewed Aircraft System Operating Permit

(v) Aerodrome Certificate

(w) Military Aircraft Maintenance Licence

(x) Air Battle Management Operator (To be issued)

5.4.1 Introduction

5.4.1.1 This section expands on the Oversight and Enforcement (O&E) policy described in section 4.1.4. Specifically, it explains how regulated entities can expect to be engaged by DASA in assessing initial and ongoing compliance.

5.4.1.2 **Regulated entity.** The term 'regulated entity' is used to describe the different organisations and personnel within the Aviation Safety community that are regulated under DASR, and who are subsequently oversighted by DASA. These entities are typically awarded DASA-issued authorisations, as listed in section DASPMAN Vol 3 Chapter 5.3.2 Aviation Safety Authorisations.

Superseded

5.4.2 DASA O&E-related responsibilities

5.4.2.1 The DASA regulatory facing directorates accountable for O&E functions are DAVNOPS, DIA and DCA. The remit of each is detailed below:

1. **DAVNOPS.** DAVNOPS responsibilities include:

   i. conducting regulatory compliance assessments of organisations to enable the issuing of:

      – a Military Air Operator Certificate (MAOC) and corresponding Operational Specification (OpSpec) under DASR.ARO

      – an Air Navigation Service Provider Certificate (ANSPC) and Service Provision Conditions (SPC) under DASR.ANSP

      – an Aerodrome Operator Certificate (ADOPRC) and Aerodrome Operator Specification (ADOpSpec) under DASR 139

      – an Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Cargo Delivery Operational Specification (ACDOpSpec) under DASR ACD

      – an Air Battle Management Operator Certificate (ABMOC) and Operational Specification (OpSpec) under DASR ABM

   ii. conducting oversight to allow the retention of existing organisation authorisations.

2. **DIA.** DIA responsibilities include:

   i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

      – a Military Type Certificate Holder (MTCH) organisation approval and the corresponding platform Type Certificate under DASR Part 21 Subpart B

      – a Design Organisation Approval (DOA) for engineering design services under DASR Part 21 Subpart J.

      – a Design Production Organisation Approval (POA) for parts production services under DASR Part 21 Subpart G or DASR Part 21 Subpart F.

   ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

3. **DCA.** DCA responsibilities include:

   i. conducting regulatory compliance assessments of organisations and nominated management personnel, to enable the issuing of:

      – DASR Part M Continuing Airworthiness Management Organisations (CAMO) authorisations

      – DASR Part 145 Maintenance Organisation (DASR 145 MO) authorisations

Superseded

– DASR Part 147 Aircraft Maintenance Training Organisation (DASR 145 AMTO) authorisations

– DASR Part 66 Military Aircraft Maintenance Licences (DASR 66 MAML)

ii. conducting oversight to allow the retention of existing organisation and approval holder authorisations, both within the ADF and those contracted to Defence.

5.4.3 Initial authorisation process

5.4.3.1 To gain an initial authorisation, the applicant:

1. organisation must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. a local documented management system that complies with DASR requirements for the proposed scope and level of activities, as defined by their organisation approval basis (ie the set of documents which provides the objective quality evidence necessary to prove compliance with the relevant DASR)

2. Nominated Management Personnel must demonstrate:

   i. a Defence need for the award of the authorisation

   ii. compliance with specific qualification, training and experience requirements.

5.4.3.2 **Application.** An application for initial authorisation is made on the relevant DASR form, in a manner established by DASA within the respective DASR. Each form describes the information to be included to demonstrate compliance, how the form is to be submitted and who to. Where the DASR does not prescribe a format or manner for the application, the applicant should contact the relevant DASA Directorate for guidance.

5.4.3.3 **Initial DASA assessment.** The process by which DASA assesses applications varies between organisations and Nominated Management Personnel. For organisations, the assessment process begins with a desk top audit of the organisation's relevant documentation (i.e. evidence which demonstrates the proposed DASR compliance means are 'Present' and 'Suitable'—see below). For Nominated Management Personnel, DASA assesses compliance with specific qualification, training, and experience requirements.

5.4.3.4 If the applicant is found to be deficient in required content or non-compliant with any relevant DASR requirement, DASA will endeavour to request additional information where practicable. Post assessment the outcome of the application will be notified to the organisation as:

1. progressed to the next stage

2. rejected, providing reasons

3. conditionally progressed, with actions taken by DASA and the applicant to ensure non-compliances are resolved.

Superseded

5.4.3.5 **On-site DASA assessment.** An on-site assessment is not an essential part of the initial authorisation process for any DASR authorisation and will be dependent on the nature of the request. DASA will determine if there is a need to conduct an on-site assessment, based on the outcome of the initial assessment, and the scope, level, and complexity of the application. Where conducted, the on-site assessment may include inspection of physical facilities and additional documents, and further face-to-face discussion with applicant staff (for additional 'Present', 'Suitable' and 'Operating' evidence—see below).

5.4.3.6 **DASA Organisational Approval.** Following the initial assessment and, if conducted, on-site assessment, the DASA team will provide a recommendation for authorisation to the DASA assessment lead. Where appropriate, an authorisation package will be compiled for DG DASA approval. Once approved, authorisation artefacts are dispatched to the applicant at which point the applicant may utilise privileges granted, noting any limitations.

5.4.3.7 **Timeline.** DASA timelines for the assessment and approval of authorisation applications will depend on the scope and complexity of the authorisation sought, and the level of DASA involvement to support the applicant through the process. DASA will endeavour to collaborate with applicants and action authorisation requests in a timely manner. Approvals may be expedited based on operational or safety imperatives and negotiated accordingly.

5.4.3.8 **Post approval.** The organisation and Nominated Management Personnel transition from the 'initial authorisation' phase to ongoing DASA oversight to retain their authorisation. The applicant is responsible for maintaining ongoing compliance with the relevant DASR and rectifying any future internally identified non-compliances through their own Quality Management System.

5.4.4 Authorisation change and retention process

5.4.4.1 **Changes to authorisations**. Should a regulated entity identify a need for authorisation scope/limitations/privilege changes, the entity must apply to DASA (except where otherwise permitted by DASR). Applications for changes to authorisations are made on a form and in a manner established by DASA within the respective DASR, as per their initial authorisation. In actioning the application, DASA will follow the same process as for initial authorisations, adjusting the scope and extent of the assessment to suit the nature of the change. The organisation and Nominated Management Personnel must not implement the proposed change until DASA has issued updated authorisations (except where otherwise permitted by DASR and previously agreed by DASA).

5.4.4.2 **Retention of authorisation.** DASA authorisations remain extant provided regulated entities retain a Defence need and continue to comply with respective DASR. Once the initial authorisation is awarded, ongoing DASA surveillance and oversight of authorisation holders commences. A key component of an effective regulatory framework is ensuring that regulated organisations have a clear understanding of when, why and how DASA will review ongoing compliance. DASA assures the validity of authorisations by applying an oversight cycle commensurate with the perceived risk to Aviation Safety (generally every 24 months). DASA's risk-based approach continually reviews safety intelligence collected from active and passive surveillance activities. Based on collected safety intelligence, DASA conducts oversight of authorisation holders, adjusting frequency and scope of oversight to suit the perceived risk.

Superseded

5.4.5 PSOE for Regulatory Oversight

5.4.5.1 The DASP O&E policy is documented in section 4.1.4, and supports compliance with the DASR through application of a consistent O&E operating model. This section provides Defence tailoring of the civil PSOE model for broader DASR application; noting the PSOE model developed for ICAO Annex 19 is heavily oriented towards Management System maturity assessment vice broader regulation compliance. When considering the Defence aviation context it is important to understand the hazard-based nature of DASR and the regulated community's SFARP obligation in achieving an acceptable level of safety through a baseline level of compliance.

5.4.5.2 Within this context, DASA will execute oversight activities of a regulated entity using the following Defence-tailored PSOE definitions:

1. **'Present' (P).** There is evidence that the process, behavior and technology indicators required for DASR compliance are clearly visible and documented within the organisation's systems.

2. **'Suitable' (S).** There is evidence the process, behavior and technology indicators are suitable (i.e. regulatory compliant) for the size, nature, context, complexity of the organisation and its services, and the Aviation Safety hazard expected to be mitigated (including consideration of industry expectation for standards, codes, guidance etc).

3. **'Operating' (O).** There is evidence that the process, behavior and technology indicators are in use and an output is being produced.

4. **'Effective' (E).** There is evidence that the process outputs , behavior and technology indicators are effective in achieving the desired DASR Aviation Safety hazard control outcome.

    i. Note, effectiveness assessments represent an evolution in compliance methodology, beyond traditional compliance/conformance assessments. In executing an effectiveness assessment, a thorough understanding of the applicable regulation's aviation safety hazard is required, to ascertain if the process outputs are effectively preventing realisation of that hazard (based on evidence collected during an oversight activity).

5.4.5.3 Where non-compliances or potential problems are identified through PSOE application enforcement action will be taken against the organisation.

5.4.6 Management of DASA Findings

5.4.6.1 Findings are issued to highlight an actual or potential non-compliance against DASR. All findings are supported by objective quality evidence and contain adequate detail to support the finding.

5.4.6.2 A Finding will only be issued to remedy an identified non-compliance to a specific regulatory outcome. Once Findings are issued, the regulated entity is responsible for identifying immediate actions, root causes, developing a corrective action plan and implementing corrective actions to address the non-compliance.

5.4.6.3 **Finding levels.** DASA issues Level 1, 2 and 3 findings, as follows:

Superseded

1. **Level 1.** Any non-compliance with DASR requirements which lowers the safety standard and seriously hazards flight safety.

2. **Level 2.** Any non-compliance with DASR requirements which lowers the safety standard and possibly hazards flight safety.

3. **Level 3.** Any non-compliance with DASR requirements, or potential problem, that could lower the safety standard and possibly hazards flight safety.

5.4.6.4 **DASA Level 1 and 2 Findings.** Once a DASA Finding is issued to an organisation, DASA will monitor that actions required to address non-compliances or potential non-compliances are managed and tracked until closure of the Finding. The DASA Level 1 and 2 Findings lifecycle has six distinct stages for regulated organisations, defined on DASR Form 1299 as follows:

1. **Organisational acceptance of Finding.** Organisations accept the Finding based on a DASA assessment of the evidence, and respond with proposed dates for the completion of their Immediate Actions and development of their Corrective Action Plan. DASA will assess the response and agree to timeframes, or consult for revised dates.

2. Where organisations does not agree with the DASA Findings issued, they must formally write to DASA, providing objective evidence as to why the Finding is inappropriate. DASA will assess the additional evidence and respond.

3. **Implementation of Immediate Actions.** Organisations implement short-term solutions to contain the non-compliance and manage the associated risk mitigated SFARP. DASA will use DASR Form 1299 to assess the organisation's actions and document acceptance, or request rework as appropriate.

4. **Root cause analysis.** Organisations assess the root causes of the non-compliance. Multiple root cause analysis tools are available to organisations, including the '5-Whys', Bow Tie, Ishikawa diagrams, Apollo Reality Charting, and Tree Diagram. Importantly, there is never just one root cause to a non-compliance, and 'human error' is never a valid conclusion.

5. DASR Form 1299 provides (as a non-compulsory use tool) a '5-Whys' template against which a root cause analysis can be conducted. DASA will use DASR Form 1299 to assess the organisation's analysis and document acceptance, or request rework as appropriate.

6. **Development of the Corrective Action Plan.** Organisations identify a corrective action for each root cause identified, to prevent recurrence. For each corrective action, the organisation defines:

    i. a means by which the effectiveness of the corrective action to prevent reoccurrence will be assessed

    ii. the objective quality evidence required to substantiate corrective action effectiveness

    iii. a lead person for its implementation, and for reporting implementation and substantiation status

    iv. the due date for corrective action completion, cognisant of the need to validate the effectiveness of the corrective action prior to closure

Superseded

v. any justification supporting the completion date choice (e.g. time to collect validation evidence, or co-dependency/secondary effects).

7. DASR Form 1299 provides a Corrective Action Plan template. DASA will use the form to assess the organisation's plan and document acceptance, or request rework as appropriate.

8. **Implementation of Corrective Actions.** Organisations implement the DASA-agreed corrective actions, progressively submitting each completed Corrective Action to DASA for consideration on DASR Form 1299. DASA will track and manage the progress of approved Corrective Action Plans so that a Finding will not fall overdue unless an individual Corrective Action due date has passed.

9. DASA will use the DASR Form 1299 to assess the organisation's assessment and document acceptance, or request rework as appropriate.

10. **Finding closure.** Once DASA is satisfied that the organisation has implemented and validated the effectiveness of all actions that address the non-compliance, DASA will close the Finding and notify the organisation.

5.4.6.5 **Findings Requiring Re-work.** Where DASA assesses issues with the quality of the response provided by an organisation in developing/implementing Immediate Actions, Root Cause Analysis, Corrective Action Plan or Corrective Actions it will be returned to the organisation for re-work. In doing so, DASA will provide the necessary details of the cause for re-work for further organisational consideration and action. As part of the re-work process the organisation will generally be required to consider if a Finding Extension is required based upon the impact of the quality issue relative to the extant hazard retention. Where extension to originally agreed submission timelines is necessary the criteria under 5.4.6.6 will be required.

5.4.6.6 **DASA Level 3 Findings.** Level 3 Findings are notified to the organisation through DASA correspondence (usually an initial authorisation notification or an oversight report). Level 3 Findings are expected to be managed to closure under the organisation's QMS. DASA will review Level 3 Finding progress during subsequent O&E activities. Inaction against a Level 3 finding does not automatically equate to a Level 2 Finding being issued. However, it may serve as evidence that, when coupled with other safety intelligence, may lead to issue of a Level 2 Finding.

5.4.6.7 **DASA Findings extensions.** An organisation can request an extension (usually through email to the respective Desk Officer) at any stage in the Findings management process. However, as the organisation owns the Aviation Safety risk associated with the Finding until DASA Finding closure, DASA will only consider these requests based on an assessment of the Finding's residual risk being mitigated SFARP. Evidence expected to be provided in an extension request should include:

1. the reason further time is required to complete actions,

2. details of what has already been completed against Findings root causes and agreed Corrective Actions,

3. what outstanding Corrective Actions remain and their revised dates for completion, and

4. justification of how residual aviation safety risk will be controlled SFARP until Corrective Action completion.

Superseded

5.4.6.8 DASA assesses all extension requests in accordance with the DASA Enforcement Principles at section 4.1.4 and notifies organisations of the outcome. However, organisations should not assume automatic extension approval.

5.5 Education and training

(Reserved)

Superseded

6. General Concepts

6.1 Introduction of New Defence Aircraft Capabilities

6.1.1 Introduction

Background

6.1.1.1 Defence periodically adds aircraft to its inventory to meet a capability need. The aircraft may be purchased or leased, crewed or uncrewed, Defence or civil registered. An essential prerequisite for Defence operation of a new aircraft, regardless of the acquisition arrangement, is for Defence to confirm that it is safe for flight. This encompasses the safety of aircraft occupants, other airspace users, and overflown people and facilities.

6.1.1.2 The acquisition process for a new aircraft begins during the capability development phase of the life cycle, where operational requirements are defined and potential solutions investigated. The Aviation Safety management process commences concurrently with the acquisition process, and remains inextricably linked. Decisions made early in the acquisition process can have an enduring effect on Aviation Safety.

6.1.1.3 For a Defence aircraft to be safe for flight, the aircraft to be appropriately designed, constructed, maintained and operated, as explained in DASP Manual Volume 3 Chapter 3, The Defence Aviation Safety Program. It is the responsibility of aircraft acquisition organisations in Defence, relevant in-service organisations and Defence industry partners, to ensure a Defence aircraft is safe for flight, both from the initial design and throughout its Defence lifecycle. In turn, the relevant Aviation Safety authorities need to gain assurance that the aircraft is safe for flight. If suitably assured, the Aviation Safety authorities can issue a range of 'authorisations', usually in the form of certificates, permits, approvals or licenses.

Purpose

6.1.1.4 This series of chapters aims to guide Defence aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the aircraft acquisition process.

6.1.1.5 This first chapter provides a general introduction to acquiring new Defence aircraft, including registration requirements, Aviation Safety responsibilities, engagement with Aviation Safety authorities and other common concepts.

Applicability

6.1.1.6 This chapter is applicable to the acquisition (whether through purchase, lease or other arrangement) of the following Defence aircraft:

1. Defence registered crewed aircraft
2. Non-Defence registered crewed aircraft (short term)
3. Defence registered certified uncrewed aircraft systems (UAS)

6.1.1.7 While the concepts in this chapter are also broadly applicable to Open and Specific category (ie non-certified) UAS, the regulatory approaches for these UAS are substantially different to certified

Superseded

aircraft, so DASP Manual Volume 3 Chapter 10, Uncrewed Aircraft Systems, separately covers their acquisition.

Structure

6.1.1.8 This chapter will provide context for the next four chapters, which will individually cover the three different arrangements for Defence aircraft acquisitions listed in paragraph 6, and as shown in Figure 1.

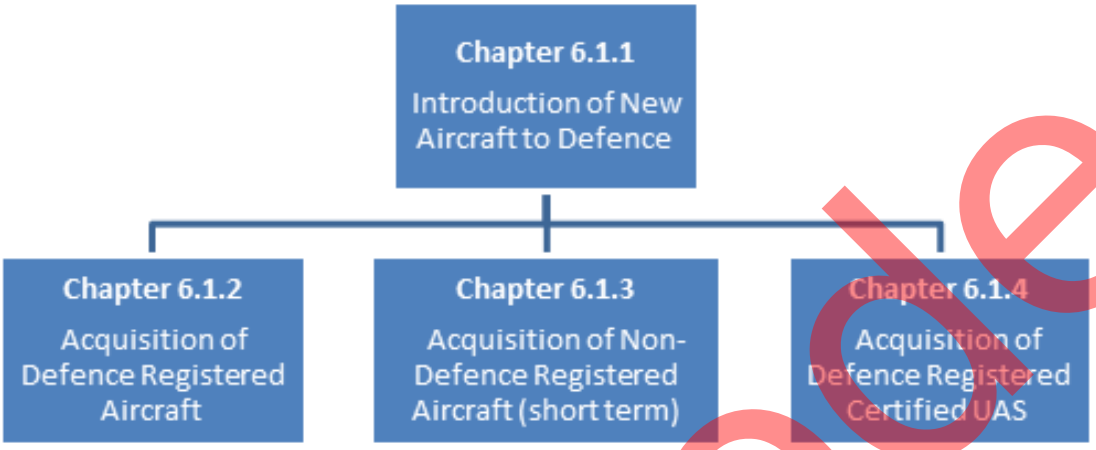


Figure 1: Chapter 6.1 structure

6.1.1.9 This chapter will also provide content that is common to the next four chapters, to avoid duplication.

Aircraft Registration

6.1.1.10 All Defence aircraft, apart from some non-certified UAS, must be included on the Register of a military or civil aviation authority. DASR separates these registrations into two categories; Defence registered aircraft and non-Defence registered aircraft. The latter are almost universally regulated by CASA. While other registrations are occasionally employed, they are always transitory arrangements[1].

6.1.1.11 A Defence registered aircraft is subject to Defence Aviation Safety Regulations (DASR) and DASA safety assurance oversight. An Australian civil registered aircraft, on the other hand, is subject to Civil Aviation Safety Regulations (CASR) and CASA safety assurance oversight as well as some limited DASA oversight.

6.1.1.12 When Defence is procuring an aircraft type that is also used under the civil regulatory framework, an important decision by the Capability Manager, required early in the acquisition process, is to determine whether the Defence aircraft will be Defence registered or civil[2] registered. This registration can have an enduring effect on Defence aviation capability, as summarised below:

1. **Defence registration.** Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR, which make specific allowance for:
   i. uniquely military roles, including weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting hazardous materials and dangerous goods etc — types of operations that may be heavily restricted or unsupportable under civil regulatory requirements
   ii. flexibility in the approach to achieving compliance with the DASR

Superseded

iii. the application of risk management where DASR compliance cannot be shown, provided a credible and defensible level of aviation safety performance is achieved

iv. Commanders to deviate from requirements (2) and (3) above in the event of compelling operational imperatives or emergencies.

DASA is experienced in regulating for the unique military operational context. Consequently, DASA is well-placed to advise Commanders on military aviation safety issues and to provide tailored independent safety assurance of military organisations and products.

2. **Civil registration.** Civil registration can initially be attractive to Capability Managers and acquisition organisations due to the simplicity of contractual and ongoing management, and potential faster introduction of the aircraft into service. However civil registration should only be considered for short term arrangements, or where an aircraft will not be considered a continuous 'State' aircraft. Complicating factors include that:

i. it can bind Defence to civil aviation safety regulations for design, maintenance and operation, and these regulations have not been customised to the unique military aviation context

ii. there may be a lack of risk-managed operational flexibility, which is the hallmark of Defence's aviation safety regulations

iii. it can bind Defence to the potential inflexibilities of the civil regulator

iv. there may be adverse diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas.

6.1.1.13 Where a Capability Manager is considering civil registration for a temporary Defence aircraft, DASA should be engaged at the earliest practicable opportunity for consultation. Annex A presents a list of issues that should be explored during this engagement, to assist the Capability Manager in making an informed decision on Defence registration versus civil registration.

6.1.1.14 Annex B presents guidance on the structure and administration of the Defence Register.

Aviation Safety Responsibilities

6.1.1.15 DASP Manual Volume 1 states that aviation safety is a command responsibility, so commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.1.16 The responsibility for ensuring (ie making sure) a new Defence aircraft is safe for flight falls directly on the Defence acquisition organisations and the relevant in-service support organisations. This includes, amongst other things, ensuring:

1. the aircraft design is safe for flight in the intended role and operating environment (ie aircraft design and certification)

2. the physical aircraft standard of construction meets that design (ie aircraft production)

3. arrangements are in place to ensure the design remains safe (ie continued airworthiness)

Superseded

4. arrangements are in place to ensure the aircraft remains in a condition for safe operation (ie continuing airworthiness)

5. arrangements are in place to design future changes and repairs (ie aircraft design)

6. operators are able to safely operate the aircraft (ie flight operations).

6.1.1.17 The role of DASA, on the other hand, is to gain assurance that the above elements have been executed effectively.

Aviation safety authorisations

6.1.1.18 When assured of safety, the relevant military or civil aviation safety authority (whether DASA or CASA) may issue a range of authorisations, often in the form of certificates, permits, approvals or licenses. For Defence registered aircraft, the list of authorisations is expansive, potentially comprising up to 12 different types of organisational, product and personnel authorisations. For civil registered aircraft, CASA will issue the civil equivalents to some or many of these 12 authorisations. Chapters 6.1.2 to 6.1.5 explore the Aviation Safety authorisations that may be issued by DASA and CASA for each acquisition category.

6.1.1.19 While DASA does not issue authorisations for civil registered aircraft, DASA may require that the aircraft are included within the scope of the Military Air Operator (MAO), issue a relevant Operations Specification (OpSpec) and conduct limited safety assurance oversight.

6.1.1.20 **Planning and coordination.** Aviation Safety authorisations issued by DASA or CASA are a major milestone in the aircraft acquisition process. Establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with the appropriate Aviation Safety authority (DASA for Defence registered aircraft, and both CASA and DASA for civil registered aircraft) is therefore in the best interests of all parties.

6.1.1.21 Engagement should ideally commence as soon as the Defence acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[3]. Engagement should be well advanced before Defence publishes any tender documents (eg Requests for Tender, Foreign Military Sales requests, etc) that may later affect an authorisation.

6.1.1.22. For civil registered aircraft, CASA will provide guidance on how to achieve the civil authorisations that will be required. DASA will do likewise for the new OpSpec, if one is to be published. This development of this DASA authorisation is far from a trivial endeavour. Not only does it cover the flying management of the MAO and other operational systems for the new aircraft, it also assesses whether the entire aviation safety construct (inclusive of all CASA authorisations) is likely to support safe Defence aviation.

6.1.1.23 For Defence registered aircraft, DASA will provide guidance on how to achieve the required DASA authorisations. Some additional guidance is available through DASA-sponsored courses and website resources.

6.1.1.24 Chapters 6.1.2 to 6.1.4 provide tailored guidance on how engage with the relevant Aviation Safety authorities, since this varies widely between civil and Defence registered aircraft, and crewed and uncrewed aircraft.

Superseded

6.1.1.25 **Documented agreements.** DASRs do not mandate any formal plans or agreements for achieving DASA authorisations. However, it is a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage Aviation Safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.1.26 For both Defence and civil registered aircraft, DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies. It describes, amongst other things, the overarching acquisition strategy in the context of Aviation Safety and brings together the planned outcomes of the operational, technical, logistical and safety management activities.

6.1.1.27 The ASAMP should be drafted after the acquisition strategy solidifies, nominally following government acquisition approval, but before RFTs (or equivalent) are released. While ASAMPs have previously been drafted before initial contact with DASA has been made, this is rarely an efficient approach. The ideal time to draft the ASAMP is soon after the initial meeting with DASA, given that meeting will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since this is the stage where the scope of most authorisations should be clear.

6.1.1.28 Chapters 6.1.2 to 6.1.5 provide guidance on the production of ASAMPs, tailored to the particular acquisition arrangement. ASAMP content varies widely between civil and Defence registered aircraft, with the latter including plans for achieving up to 12 different DASA authorisations. While the differences between crewed and uncrewed aircraft ASAMPs are less significant, the latter will focus on the unique challenges of separating the crew from the aircraft and the additional transitional authorisations that may be available for certified UAS.

Common Concepts

6.1.1.29 The next four chapters are dedicated to the four acquisition arrangements listed at Paragraph 6.1.1.6. To avoid duplication in those chapters, the remainder of this chapter will introduce several concepts that are likely to be common to each acquisition arrangement.

Recognition

6.1.1.30 Aviation Safety authority may acknowledge that products, services and data received from another Aviation Safety authority and the respective system they oversight are compatible within their own Aviation Safety framework. This concept, known as ‘recognition’, is extensively employed for new Defence aircraft acquisitions. Regardless of whether a new aircraft is Defence registered or not, recognition will almost certainly be applied for aircraft design and production. For non-Defence registered aircraft, recognition will also contribute to Defence’s confidence in aircraft maintenance and operation. DASP Manual Volume 3 Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

6.1.1.31 Where recognition is being considered for a certified UAS, DASA advice should be sought. Certified UAS are not yet commonplace, so the competence and capability of international Aviation Safety authorities in regulating and oversighting certified UAS is still evolving.

Statement of Operating Intent and Usage (SOIU)

Superseded

6.1.1.32 DASRs require all Defence registered aircraft and certified UAS (and certain other UAS when directed by the Authority) to have a Statement of Operating Intent (SOIU) that has been approved by the relevant Environmental Commander and DASA. The SOIU describes the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type.

6.1.1.33 Development of an SOIU is not mandatory for a non-Defence registered aircraft, but may assist MAOs with establishing the operational context of their intended operations, to assist with identification of any additional safety controls required to provide an equivalent level of safety to that of Defence registered aircraft.

6.1.1.34 Annex C presents further information and development guidance for SOIUs.

Independent Review of Aviation Safety

6.1.1.35 DASP Manual Volume 3 Chapter 6, Independent Review of Aviation Safety, provides information on the scope and role of Airworthiness Boards (AwBs) within the framework of capability acquisition.

6.1.1.36 Historically, AwBs were identified as a 'gate' for issuance of some DASA authorisations. The contemporary role of the AwB in the acquisition process is to complement the role of the regulator in addressing parts of the 'system of systems' that are not adequately covered through regulatory oversight activity. DASA identifies that this increases flexibility and reduces the impost on the regulated community.

6.1.1.37 Chapters 6.1.2 to 6.1.4 provide guidance on the documentation package provided to Introduction into Service (IIS) AwBs for each acquisition type. The documentation will commonly consist of:

1. the extant submissions for the relevant DASA authorisations
2. an updated ASAMP which reflects the status of the acquisition program, details and plans for outstanding activities, and impact statements and associated risk management for outstanding activities
3. checklists and other artefacts.

6.1.1.38 An AwB is commonly convened prior to the first operation of a Defence registered aircraft, due to the often complex nature of organisational, risk management and other elements. Notwithstanding the aforementioned, there is no regulatory impediment to commencing limited operations, commensurate with risk, prior to the conduct and reporting of an IIS AwB. Progressive AwBs may be convened as the organisations and operational capabilities evolve.

6.1.1.39 An IIS AwB may be less common for non-Defence registered aircraft given that Defence aircraft that are continuous 'State' aircraft should be Defence registered. When determining whether an AwB is required, the Defence AA may take into account the complexity of support arrangements, whether Defence's operations are closely aligned to civil norms, and other similar factors.

Annexes:

(a) Aircraft Registration Discussion Points

(b) Defence Registration

(c) Statement of Operating Intent and Usage (SOIU)

Superseded

6.1.2 Acquisition of (Crewed) Defence Registered Aircraft

Introduction

6.1.2.1 Aviation safety is a command and management responsibility. Commanders and senior managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.2.2 Provided the aircraft and its support and operating arrangements meet the relevant Defence Aviation Safety Regulation (DASR) requirements, DASA may issue a range of 'authorisations', in the form of certificates, permits, approvals or licenses. These authorisations provide confidence to both the Capability Manager and the Australian Government that the aircraft is capable of safe flight.

6.1.2.3 While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that additional guidance is needed if safety risks are to be efficiently and effectively eliminated or otherwise minimised so far as is reasonably practicable.

Purpose

6.1.2.4 This chapter guides Defence's aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the acquisition (whether through purchase, lease or other arrangement) of crewed aircraft that will be Defence registered.

Regulatory outcomes from the acquisition process

6.1.2.5 For a new Defence registered aircraft to operate, Command must ensure it is safe for flight. Command achieves this by ensuring the aircraft are designed, constructed, maintained and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation. In turn, if suitably assured of safety, DASA may issue a range of authorisations. Depending on the acquisition and support arrangements, this can extend to 12 different types of organisational, product and personnel authorisations, as follows:

1. organisational authorisations:
    - i. Military Air Operator (MAO)
    - ii. Military Design Organisation (MDO)
    - iii. Military Production Organisation (MPO)
    - iv. Approved Maintenance Organisation (AMO)
    - v. Continuing Airworthiness Management Organisation (CAMO)
    - vi. Maintenance Training Organisation (MTO)
    - vii. Military Type Certificate Holder (MTCH) (currently an implicit authorisation)
2. product authorisations:
    - i. Military Type Certificate (MTC) and associated Type Certificate Data Sheet (TCDS)
    - ii. Military Permit to Fly (MPTF)
    - iii. Aircraft Management Programme (AMP)

Superseded

iv. Military Certificate of Airworthiness (CoA)

Note: *In addition, it may include a range of niche authorisations, for example a product conformity agreement, master minimum equipment list, and so on.*

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: *DASA directly authorises certain management personnel within approved organisations. However, those authorisations are considered to be part of the organisational approval process in this chapter, so they are not separately listed here.*

6.1.2.6 Figure 1 summarises the range of DASA authorisations that are usually relevant to a new aircraft acquisition, grouped according to their relevance to aircraft design, construction, maintenance or operation. The subsequent paragraphs separately explore each group.

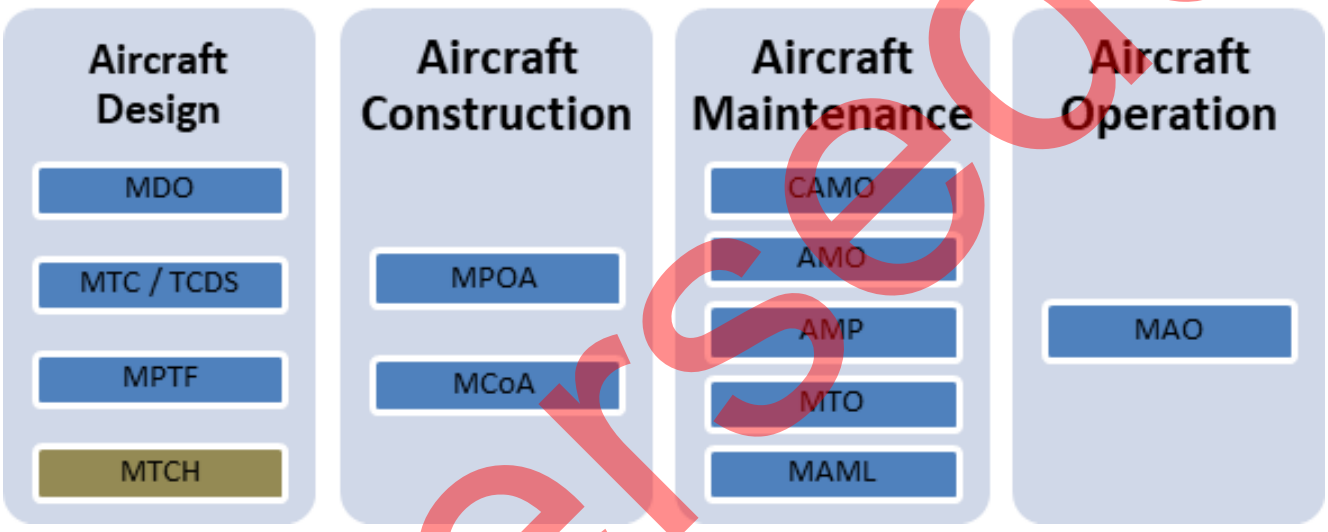


Figure 1: DASA authorisations relevant to Defence aircraft acquisitions[4]

Aircraft design (and certification)

6.1.2.7 New Defence crewed aircraft will normally be civil or military 'off-the-shelf' aircraft that are subsequently modified to meet Defence's capability requirements. Ensuring the final aircraft design is safe for flight in Defence's intended Configuration, Role and Environment (CRE) is a critical step in the acquisition process. Four separate DASA authorisations are relevant to this process, design, construction, maintenance or operation.

6.1.2.8 **Military Design Organisation (for initial aircraft design).** An organisation that has been approved by DASA to provide aircraft design services for a new Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a military or industry organisation, and may be located in Australia or overseas. MDOs are often required for the design of new Defence aircraft, although as explored in the next four paragraphs, this requirement can be reduced, or even eliminated, in some circumstances.

6.1.2.9 **Military Type Certificate.** The Defence type certification process is central to confirming that the aircraft design is safe for Defence's intended Configuration, Role and Configuration (CRE) for the aircraft. At its core is the Type Certification Basis (TCB), which is a DASA-agreed set of

Superseded

airworthiness design requirements, including an airworthiness code and other standards, and tailoring to both as required.

6.1.2.10 At its extreme, type certification requires a DASA-approved MDO to create an aircraft design that complies with the TCB, and to produce evidence that demonstrates this compliance. In turn, DASA examines the evidence on a non-exhaustive basis, and if assured of safety, issues a Military Type Certificate (MTC)[5] and associated TCDS.

6.1.2.11 There is, however, a shortcut to the above approach that is employed for most Defence aircraft acquisitions. When Defence is procuring off-the-shelf aircraft or equipment, the Applicant[6] may seek relief from the need to develop new compliance demonstration evidence, to the extent an extant certification by a recognised National or Military Aviation Authority (NAA/MAA) is relevant to Defence's CRE. This is known as 'recognition of prior certification'. In rare circumstances, DASA can certify an entire new aircraft based solely on the prior certification of another NAA/MAA.

6.1.2.12 More commonly, however, Defence aircraft acquisitions employ a combination of the above two processes. That is, recognition of prior certification is used to cover the design of the off-the-shelf aircraft, and a DASA-approved MDO designs the Defence-unique modifications and produces the requisite compliance demonstration evidence. Sometimes another NAA/MAA may agree to certify some or all of the Defence-unique modifications, which may reduce or even remove the need for a DASA-approved MDO.

6.1.2.13 **Military Type Certificate Holder.** The MTC for a new Defence aircraft is issued by DASA to the Military Type Certificate Holder (MTCH), who takes on responsibility for ensuring the 'continued airworthiness' of the design[7]. This role is normally assigned to the relevant Defence SPO, who will implement standing arrangements with other Defence organisations, industry partners, and perhaps other militaries, to support the function. Amongst other things, the MTCH organisation is responsible for implementing systems for collecting, investigating and analysing aircraft occurrences which may affect its airworthiness, and holding (or providing access to) aircraft design information.

6.1.2.14 Note that DASA does not currently issue an explicit organisational approval for MTCHs, although this may change. Instead, the proposed MTCH arrangement is evaluated by DASA as part of its deliberations on whether to issue a MTC.

6.1.2.15 **Military Permit to Fly.** It is possible for DASA to issue a MTC for a new aircraft type immediately upon its addition to the Defence Register. More likely, however, there will be a period where the aircraft is not yet ready for a MTC because, for example:

1. the aircraft design is still under development
2. compliance demonstration evidence is still being created or compiled
3. Defence's MTC will leverage off the certification of another NAA/MAA, which is yet to be finalised

6.1.2.16 DASA can issue a Military Permit to Fly (MPTF) to a MAO[8] in advance of the MTC if satisfied the aircraft design substantially complies with its agreed TCB, the configuration of the subject aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions and for specified purposes, and any elevated risk has been justifiably retained. However, since the MPTF will usually impose (often significant) risk controls that limit the operation of the aircraft, extended operations under an MPTF are not common.

Superseded

6.1.2.17 **Military Design Organisations (for in-service support).** Finally, throughout an aircraft's operational life, design changes are inevitable to remedy design defects, address obsolescence issues, design repairs, implement capability enhancements, and so on. These design changes will often be the purview of one or more DASA-approved MDOs, which are typically (but not essentially) the same as the MDOs that support the MTCH function.

6.1.2.18 Ultimately, both the MTCH and Continuing Airworthiness Management Organisation (CAMO – see below) must be able to demonstrate that sufficient design support arrangements are in place to maintain the safety of the aircraft[9], before a new aircraft is operated on the Defence Register. Depending on the aircraft acquisition contract, this design support function might initially be provided by the aircraft Original Equipment Manufacturer (OEM); if so, the in-service MDOs might not be needed immediately.

6.1.2.19 **Summary.** Summarised, the four DASA design-related authorisations that are usually relevant to aircraft acquisitions are presented in Figure 2. The MTCH is depicted in a different colour, to show that DASA does not (yet) directly issue an MTCH approval.

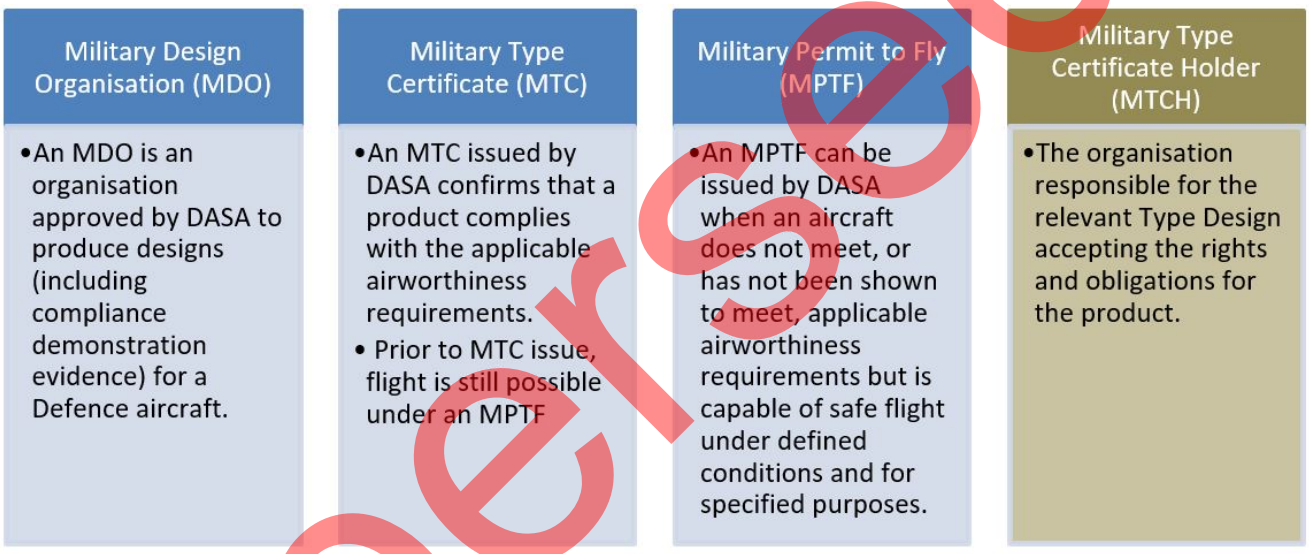


Figure 2: DASA authorisations related to aircraft design

6.1.2.20 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MDOs, MTCs, MPTFs and MTCHs.

Aircraft production (or construction)

6.1.2.21 A MTC focuses on the safety of an aircraft's design. It does not consider the subsequent manufacture and assembly of the design, which is the purview of aircraft production (or 'construction' in historic Defence parlance). The two DASA authorisations relevant to new aircraft production are Military Production Organisations and Military Certificates of Airworthiness.

6.1.2.22 **Military Production Organisation.** A Military Production Organisation (MPO) is a DASA-approved organisation that can manufacture and assemble parts, appliances, aircraft, engines or propellers to approved design data[10]. In the context of a Defence aircraft acquisition, MPOs can manufacture and assemble both the baseline aircraft (often called the 'green' aircraft) and the

Superseded

Defence-unique modifications to the green aircraft. They may be the same organisation, or there may be multiple different MPOs.

6.1.2.23 More commonly for new aircraft, however, Defence leverages the oversight provided by a DASA-recognised NAA/MAA of certain production organisations. This can reduce, or even eliminate, the need for DASA-approved MPOs.

6.1.2.24 **Military Certificate of Airworthiness.** As noted previously, a MTC is issued for an aircraft type. A separate DASA authorisation needs to subsequently be issued for each aircraft tail, namely the Military Certificate of Airworthiness (MCoA)[11], once DASA is satisfied the produced aircraft conforms to the design covered by the MTC. Central to DASA issuance of a MCoA is evidence that each product, part or appliance conforms to the approved design data and is in condition for safe operation.

6.1.2.25 A MCoA cannot be issued prior to the MTC. Where a new Defence aircraft is to be flown under a MPTF prior to the issue of a MTC, the MPTF effectively provides the function of the MCoA. As part of the process for seeking a MPTF, an applicant will need to demonstrate that the produced aircraft does indeed conform to the currently approved design data.

6.1.2.26 **Summary.** Summarised, the two DASA production-related authorisations that are usually relevant to new aircraft acquisitions are presented in Figure 3.

Figure 3: DASA authorisations related to production

6.1.2.27 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MPOs and MCoAs.

Aircraft maintenance (continuing airworthiness)

6.1.2.28 While Defence has long used the colloquial term of 'aircraft maintenance' to cover airworthiness activities beyond aircraft design and production, the DASRs purposely use the more expansive term of 'continuing airworthiness'. Aircraft maintenance is any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component. Continuing airworthiness encompasses this, plus maintenance management,

Superseded

maintenance training and maintenance licensing. For completeness, this section will use the term 'continuing airworthiness'.

6.1.2.29 Robust continuing airworthiness arrangements must be in place prior to the operation of a new Defence aircraft. Once assured of the sufficiency of these arrangements, DASA may issue three relevant organisational approvals, namely Continuing Airworthiness Management Organisations, Approved Maintenance Organisations and Maintenance Training Organisations. DASA may also approve Aircraft Maintenance Programmes and issue Military Aircraft Maintenance Licences to eligible personnel.

6.1.2.30 **Continuing Airworthiness Management Organisation.** Continuing Airworthiness covers all processes that ensure an aircraft continues to comply with initial airworthiness requirements and supports the ongoing validity of the aircraft's MCoA. The Continuing Airworthiness Management Organisation (CAMO), while not directly responsible for actual aircraft maintenance, is responsible for engaging organisations to conduct design and maintenance services. The CAMO will:

1. engage MDO(s) for design services as required
2. engage the MTCH for any matters that impact the aircraft's type design and type certification under MTC or an individual aircraft's CoA]
3. task AMOs to maintain products (aircraft, engines and propellers), parts and appliances and
4. provide governance and oversight to organisations performing DASR M functions on its behalf.

6.1.2.31 In most cases, the acquisition of a new aircraft type will not result in the creation of a new CAMO; rather, the scope of an extant CAMO will be expanded to include the new aircraft type. The presence of a suitable CAMO is integral to DASA's approval of a new MAO, or adding an additional aircraft to an extant MAO's scope.

6.1.2.32 **Aircraft Maintenance Organisations.** DASR provides two avenues for the maintenance of an aircraft and its components. The first is a DASA-approved Approved Maintenance Organisation (AMO), and the second is 'another maintenance organisation accepted by DASA'. A combination of both is usually employed for Defence aircraft.

6.1.2.33 An AMO is an organisation approved by DASA to conduct aircraft maintenance activities. This includes all actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness. AMOs may be a military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types. New Defence aircraft may be supported by one or several AMOs.

6.1.2.34 DASR Part M makes provision for maintenance services to be consumed from other maintenance organisations that are accepted by DASA. While the regulation infers that DASA explicitly accepts each of these maintenance organisations, this is not normally the case. Rather, DASA will automatically accept a maintenance organisation provided it is oversighted by a NAA/MAA that is 'recognised' as competent by DASA, and provided the CAMO ensures the conditions and caveats on the relevant 'recognition certificate' are met. Recognition certificates for each NAA/MAA recognised by DASA are available on DASA's website.

6.1.2.35 Prior to operation of a new Defence aircraft, the CAMO must demonstrate that arrangements are in place to maintain the aircraft in an airworthy condition. In limited circumstances,

Superseded

DASA may agree to the temporary absence of some maintenance arrangements, but only where this does not affect the near-term support of the aircraft.

6.1.2.36 **Aircraft Maintenance Programme.** An Aircraft Maintenance Programme (AMP) describes the scheduled maintenance tasks, their frequency of completion, the associated maintenance procedures, and so on, necessary to preserve the airworthiness of the aircraft. For aircraft acquisition projects, an initial AMP must be approved by DASA prior to the conduct of any maintenance activities. Maintenance activities can in some cases pre-date flying operations on the Defence Register, since they include aircraft preservation and other maintenance tasks required to prepare the aircraft for operation.

6.1.2.37 **Military Aircraft Maintenance Licenses.** AMOs require some personnel to hold particular categories of Military Aircraft Maintenance Licences (MAMLs). Furthermore, in order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML requires their licence to be endorsed with the relevant aircraft type ratings. As part of the AMO approval process for a new aircraft, the AMO will need to demonstrate that its personnel hold sufficient and applicable MAMLs.

6.1.2.38 **Maintenance Training Organisation.** A Maintenance Training Organisation (MTO) conducts training and examinations for maintenance personnel as specified in DASR 66. While a new MTO would rarely be required for a new Defence aircraft, an extant MTO would need to demonstrate its competence to conduct the type/task training and assessments for the new aircraft.

6.1.2.39 **Summary.** Summarised, the five DASA authorisations related to continuing airworthiness (of which maintenance is a component) of Defence aircraft acquisitions are presented in Figure 4.

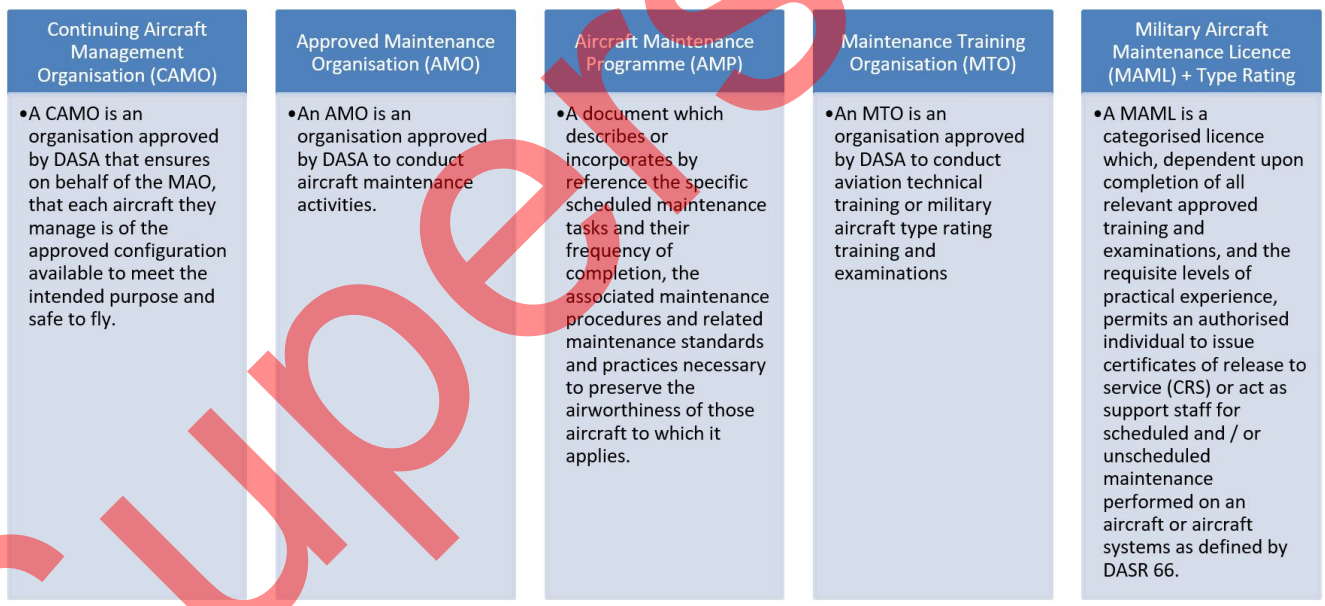


Figure 4: DASA continuing airworthiness-related authorisations

6.1.2.40 DASPMAN Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into CAMOs, AMOs, AMPs, MTOs and MAMLs.

Aircraft operation

6.1.2.41 A Military Air Operator Certificate (MAOC) is the principal authorisation granted by DASA to conduct military air activities. Each aircraft type operated by the MAO is authorised by a separate DASA-issued Operations Specification (OpSpec) annex. The OpSpec annex details, amongst other

Superseded

things, key positions of the MAO, operating provisions, roles and tasks, specific approvals, and any limitations or conditions imposed by DASA.

6.1.2.42 The relevant OpSpec annex is required before first flight of the aircraft by the MAO[12]. DASA will issue the OpSpec annex once assured that the necessary Fundamental Inputs to Capability (FIC) elements, as well as quality and safety management systems, are in place to support intended operations.

6.1.2.43 Preparing a MAO to take on a new Defence aircraft can be a substantial undertaking. Amongst other things, for the new aircraft type the MAO will need to:

1. define the operating intent and usage for the aircraft through an approved Statement of Operating Intent and Usage (SOIU)
2. ensure arrangements are in place for maintaining the airworthiness of the aircraft through a CAMO and AMOs
3. implement the multitude of systems needed to manage Operations personnel and Air operations
4. produce/accept Orders, Instructions and Publications (OIP)[13]
5. establish an Aviation Safety Management System (ASMS).

6.1.2.44 Implementing these requirements, even for an existing MAO, is likely to require considerable planning and effort. Consequently, DASA recognises that a graduated capability growth plan for operational authorisations may be required. The Aviation Safety Acquisition Management Plan (ASAMP - see Chapter 6.1.1 and later in this chapter) is a suitable repository for reflecting the status of the acquisition program, including details of work completed, re-programing of remaining activities and risk management for the incomplete tasks.

6.1.2.45 **Summary.** Summarised, the singe DASA flight operations-related authorisation relevant to aircraft acquisitions is presented in Figure 5.

Superseded

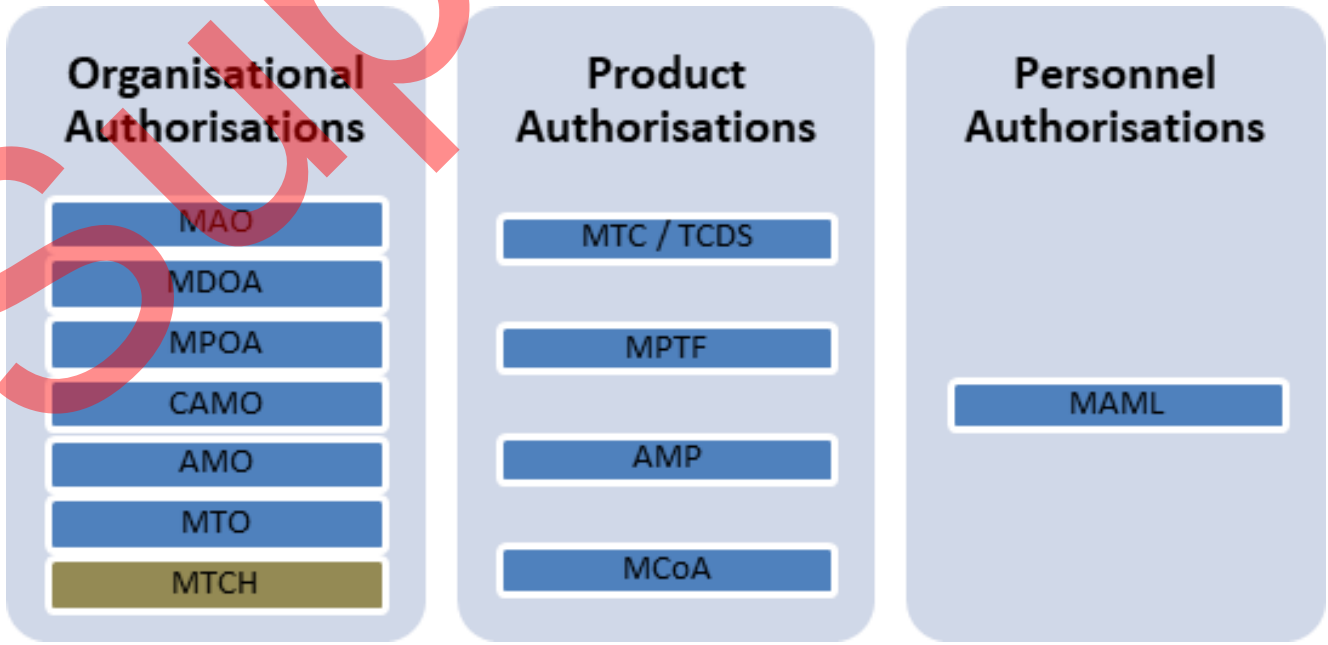
Figure 5: DASA authorisations related to aircraft operations

6.1.2.46 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MAOs.

Summary

6.1.2.47 This section has presented an overview of the DASA authorisations that may be relevant to new aircraft design, construction, maintenance and operation. Depending on the acquisition arrangements and the aircraft role, some authorisations might not be required.

6.1.2.48 The diagram at the start of this section (Figure 1) summarised all of the possible DASA authorisations according to whether they were relevant to new aircraft design, construction, maintenance or operation. However, another way of grouping them is according to whether they are organisational, product or personnel authorisations, as shown in Figure 6.



Superseded

Figure 6: DASA authorisations for new aircraft (grouped by category)

6.1.2.49 This grouping has the advantage that the eight organisational authorisations all use substantially the same processes for application and approval, and the three product authorisations have strong synergies. Consequently, for simplicity, this grouping will be used in the next section.

Processes, Plans and DASA Interaction

6.1.2.50 The previous section presented an overview of the DASA authorisations that may be relevant to new aircraft acquisitions. While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that achieving the authorisations can be a complex and protracted journey. This section guides the reader though the process of achieving these DASA authorisations.

6.1.2.51 Figure 7 shows how the various DASA authorisations usually fit onto a project timeline. The vertical stripes present four significant milestones for introducing a new aircraft to Defence, the items above the dashed line show DASP-related project and Command activities, and the items below the line show the DASA authorisations. A time scale has purposely not been included, because this can vary enormously between aircraft acquisitions.

Superseded

Figure 7: Common project timeline for DASA authorisations

6.1.2.52 The elements below the dashed line can broadly be grouped into five activities, as shown in Figure 8. With the exception of Activity 1, the remaining activities are rarely sequential; more often than not Activities 2 and 3 are executed concurrently, and several activities may be cyclic.

Superseded

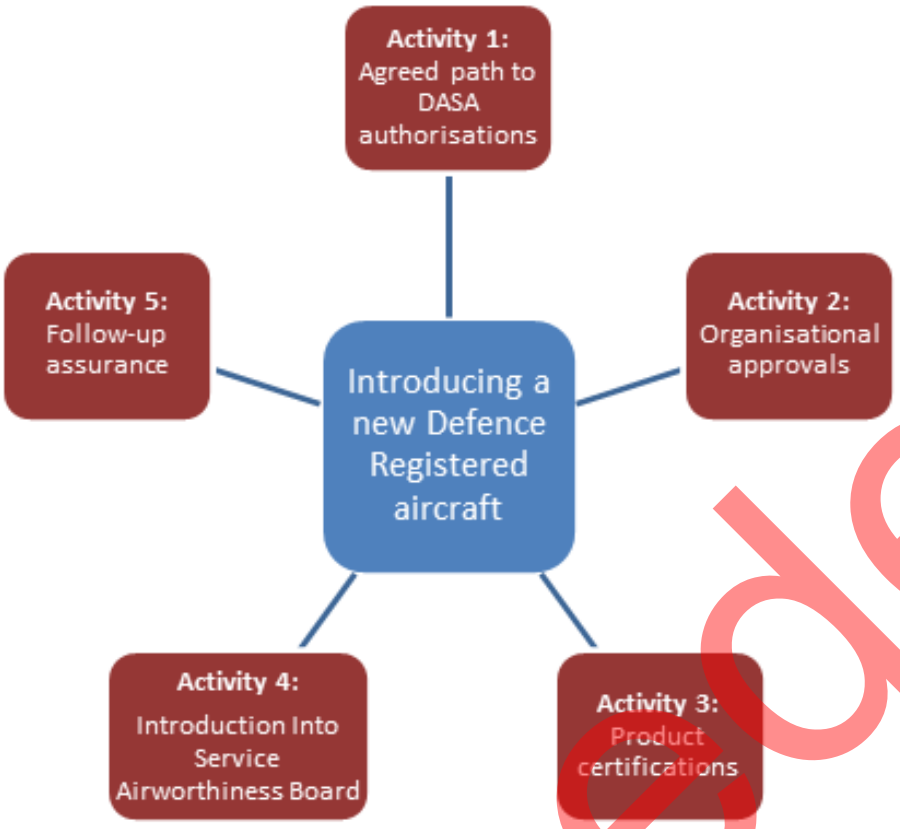


Figure 8: Activities in introducing a new Defence aircraft

6.1.2.53 Each of these five activities from Figure 8 is explored below.

Activity 1: Agreed path to authorisations

6.1.2.54 A major milestone in the aircraft acquisition process is the achievement of a range of DASA authorisations. However, establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with DASA is therefore in the best interests of all parties.

6.1.2.55 **Initial engagement.** Engagement should ideally commence as soon as Defence's acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[14]. Engagement should be well-advanced before Defence issues any tender documents (eg Requests for Tender, Foreign Military Sales Letter of Requests, etc) that may later affect an authorisation.

6.1.2.56 The initial engagement should involve DASA specialists, the Defence acquisition organisation, and capability manager representatives. If known, the Defence and industry organisations that will support the aircraft could also participate. Key outcomes will be:

1. a shared understanding of the project scope and schedule, candidate aircraft and the likely scope of Defence-unique design changes

Superseded

2. initial views on which of the seven DASA organisational approvals are likely to be needed and, for those that may not be needed, agree on the alternative means of achieving the same safety outcomes

3. initial views on how the aircraft might achieve an MTC, including how current or future certifications by DASA-recognised national or military airworthiness authorities (NAA/ MAAs) might contribute

4. initial views on whether an MPTF might be required to allow for test and other flying prior to the issue of an MTC

5. DASA should provide a management overview of each likely DASA authorisation, including: key milestones, common approval timeframes, recommended DASA collaboration, availability of training and other guidance material, and so on.

6.1.2.57 Annex A presents an expanded version of the above list, which can be used as a set of talking points for this initial engagement. Depending on the acquisition strategy, some of the details may initially be sparse. If so, further engagement should be scheduled for when the information is likely to become available, but still before releasing RFTs or equivalent documents.

6.1.2.58 **Documented agreement.** As noted in Chapter 6.1.1, DASRs do not mandate a plan or agreement for achieving DASA authorisations. It is, however, a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage aviation safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.2.59 DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between Applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies.

6.1.2.60 Annex B presents the suggested content and management arrangements for an ASAMP. Summarised, it suggests the main body of the ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistical and safety management activities. It should also describe the management of flight operations during acquisition, particularly if operations are to commence under an MPTF.

6.1.2.61 Annex B also suggests the ASAMP should include a series of annexes, with individual annexes dedicated to each DASA authorisation. Each annex could be sponsored by the relevant Applicant for the DASA authorisation, and could form an agreement between DASA and the Applicant on the path to the particular authorisation. For simple acquisitions, the annexes might directly present the information[15]. For more complex acquisitions, particularly where there are a range of Applicants for the various DASA authorisations, the annexes might merely contain a link to a planning document that is drafted and managed by the respective Applicant. Either way, the annexes should be 'modular', whereby each annex is configuration managed and approved separately to the main body of the ASAMP.

Superseded

6.1.2.62 The ASAMP should be drafted after the acquisition strategy solidifies (usually post Government approval), but before RFTs (or equivalent) are released. The ideal time to draft the ASAMP is usually soon after the initial engagement with DASA, and in fact that engagement will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since the path to most DASA authorisations should be clear.

6.1.2.63 Once contracts and agreements are signed, the main body of the ASAMP need only be updated when there is a marked change in the acquisition strategy or high-level schedule for the project. The annexes, on the other hand, will probably be updated more frequently, particularly in the earlier stages of the project as knowledge and plans evolve.

6.1.2.64 **Ongoing engagement.** DASA's experience is that three forms of engagement should be maintained throughout the project lifecycle, as follows:

1. Periodic major stakeholder engagements, expanding on the initial engagement suggested previously in this section. This should occur throughout the acquisition project lifecycle, usually when significant milestones are approaching

2. Frequent coordination and status updates between senior project management staff (commonly the CASG Project Engineering Manager, the CM Transition Team lead, etc), and DASA's operational and technical leads for the acquisition

3. Engagement as required between each of the Applicants for a DASA authorisation and the respective DASA specialist.

6.1.2.65 **DASA assistance with contract reviews.** There is no DASR requirement for DASA to be engaged in seeking offers (eg RFT or equivalent), selecting the successful tenderer, negotiating the contract, and signing the contract. However, where a contract element may one day affect a DASA authorisation, prudent DASA involvement can reduce project cost and schedule risk. Areas where DASA can contribute include:

1. Prior to RFT (or equivalent) issue:

    i. confirming the RFT requirements for organisational approvals are appropriate for aircraft acquisition and/or in-service support

    ii. confirming the RFT airworthiness design requirements (including airworthiness codes and other standards), and proposed approach to aircraft certification, present a suitable pathway to MTC

    iii. confirming the RFT aircraft production arrangements present a suitable pathway to issue of MCoA

    iv. confirming aircraft registration pathways, particularly for significant modifications to a green aircraft by a third party

Superseded

v. providing expert input to specialist aircraft design technology requirements, such as aircraft structural integrity (ASI) design and in-service management systems.

2. For RFT assessment:

i. If any of the above RFT items seek preliminary plans for DASA organisational approvals or product certifications, then DASA can participate in the assessment of those plans

ii. otherwise, while the Defence acquisition organisation will conduct the tender evaluation, DASA staff are available for on-call advice and assistance as required[16]

3. For contract negotiation: DASA staff would rarely be directly involved in contract negotiations, but are available for on-call advice and assistance as required.

4. Final contract review: DASA does not review the mature contract prior to signature, but is available for advice and assistance as required.

6.1.2.66 **Delegations.** During the project lifecycle, organisations may elect to delegate their Command responsibilities, for example the appointment of the senior operator within the project transition team to make operational decisions in relation to the project. Once notified of the delegation, DASA will treat the decisions and approvals of the delegate as if the accountable manager had issued them.

6.1.2.67 Later in the project lifecycle, usually just before MTC issue, a 'Platform DoSA' will need to be appointed by DASA. The Platform DoSA role is normally delegated to the incumbent Defence CENGR of the platform MTCH organisation, and is responsible for assurance of MTCH actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. DASP Manual Volume 3 Chapter 4.3, Delegates of the Safety Authority, provides additional information.

Activity 2: Organisational approvals

6.1.2.68 Professional aircraft design, construction, maintenance and operation organisations are cornerstone to aviation safety. Implementing the required organisations for a new aircraft, and obtaining DASA approval of each organisation, is usually a significant activity for both the Applicants and DASA. This section explores the planning, establishment and assessment of new DASA-approved organisations.

6.1.2.69 **Planning.** As noted in Activity 1, the ASAMP should include a planning annex for each organisational approval. The ASAMP should plan for the organisational approvals to be achieved well prior to their need date, which are likely to be as follows:

Superseded

1. MAO: DASA authorisation is required prior to the first operation of the aircraft by the MAO[17]. This authorisation is reflected in DASA's issue of an OpSpec annex for the new aircraft

2. MDO:

   i. (for initial aircraft design): Required prior to design changes to the green aircraft, if those changes are not to be certified by a recognised NAA/MAA

   ii. (for in-service support): Required prior to first flight on the Defence Register, unless DASA has agreed to an alternative interim support arrangement

3. MTCH: Implementation of suitable MTCH arrangements are a prerequisite for issue of an MTC. However, depending on the acquisition arrangement, some of these functions may need to be in place earlier to support the initial MPTF

4. MPO: Required prior to any aircraft production activity, unless an alternative production approval path has been agreed by DASA

5. CAMO: Required prior to first flight of the aircraft on the Defence Register

6. AMO: Required prior to first flight of the aircraft on the Defence Register[19], unless an alternative interim maintenance arrangement has been agreed by DASA. AMOs will need MAMLs in sufficient numbers to meet AMO needs, relevant to the scope of operations and numbers of aircraft

7. MTO: Agreed in consultation with DASA.

6.1.2.70 Note that while DASA agreement to the above authorisation plans is not a regulatory requirement, it is encouraged by DASA. As Figure 9 shows, the time needed to implement a new organisation and then achieve a DASA organisational approval can be substantial, so careful management is needed to minimise Defence's schedule risk.

Superseded

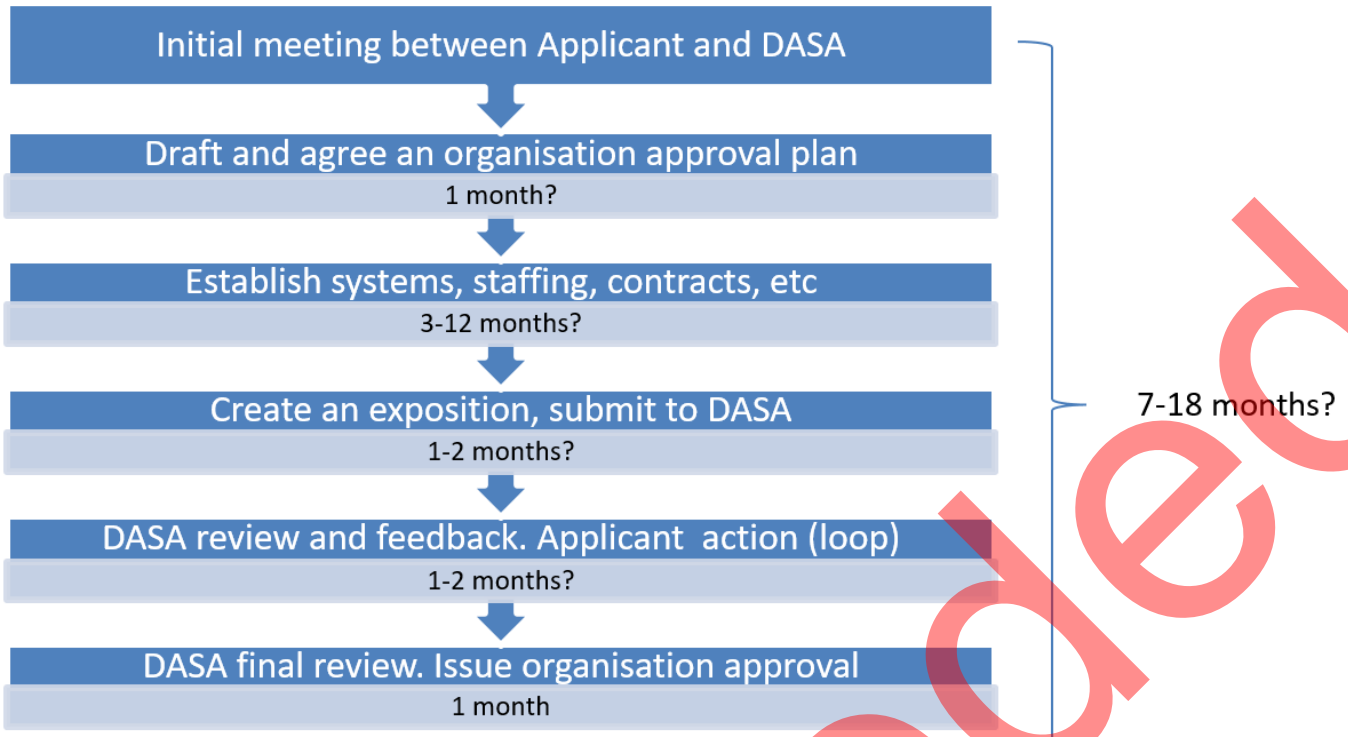


Figure 9: Timeline for DASA organisational approvals

6.1.2.71 **Establishing organisations.** DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, presents a description of each DASA organisational approval, including the key artefact(s) needed to show regulatory compliance - for example, the MDO's design organisation handbook, the AMO's Maintenance Organisation Exposition (MOE), the MAO's Operations Compliance Statement (OCS), and so on. Each of these artefacts will help guide the Applicant's efforts to establish an organisation that professionally supports Defence aviation safety, as will the Acceptable Means of Compliance (AMC) and Guidance Material (GM) accompanying the relevant DASRs. DASA-sponsored education courses and DASA website material also offer useful information.

6.1.2.72 However, Applicants must bear in mind that such guidance may be incomplete, or not entirely relevant to the local context. Consequently, DASA cannot overstate the importance of the Applicant's role in refining the organisation beyond DASR (and DASA) requirements. This might include, for example:

1. learning from other Defence organisations
2. learning from comparable civil organisations[20]
3. exploring the (often extensive) guidance material released by other NAA/MAAs[21]
4. consulting with staff and others with relevant domain expertise.

6.1.2.73 A robust and evolving Aviation Safety Management System (ASMS) is pivotal to establishing an organisation that optimises its contribution to Defence aviation safety. An ASMS utilises a systematic

Superseded

approach to managing aviation safety, including organisational structures, accountabilities, policies and procedures. An effective ASMS continuously improves an organisation's safety performance through pro-actively collecting and analysing safety data to predict, prevent and treat aviation hazards and risks. DASP Manual Volume 3 Chapter 6.2, Safety Management, provides further guidance.

6.1.2.74 **DASA assessment.** The annexes in Chapter 5.3 provide insight into DASA's approach to assessing, and ultimately approving, a new or expanded organisational approval. Most approvals follow a similar process, namely:

1. the Applicant drafts an 'Exposition' or similar document, as key evidence that their organisation has implemented the systems and processes needed to comply with the relevant DASRs

2. the applicant submits the relevant DASR Form to seek an organisational approval

3. DASA conducts an assessment of the Exposition and the documents it references, often as a desktop activity for new organisations; on occasion DASA may do an on-site assessment

4. if needed, the applicant remedies any deficiencies that preclude DASA's approval of the organisation

5. DASA issues an organisational approval, perhaps initially limited in scope

6. once the aircraft is operating and the organisation has the opportunity to exercise its approval, DASA will conduct a deeper assessment, usually including an on-site visit, placing particular emphasis on the effectiveness of the ASMS and system monitoring.

6.1.2.75 Figure 10 summarises the path through to DASA approval for the seven organisations common to new aircraft acquisitions.

Superseded

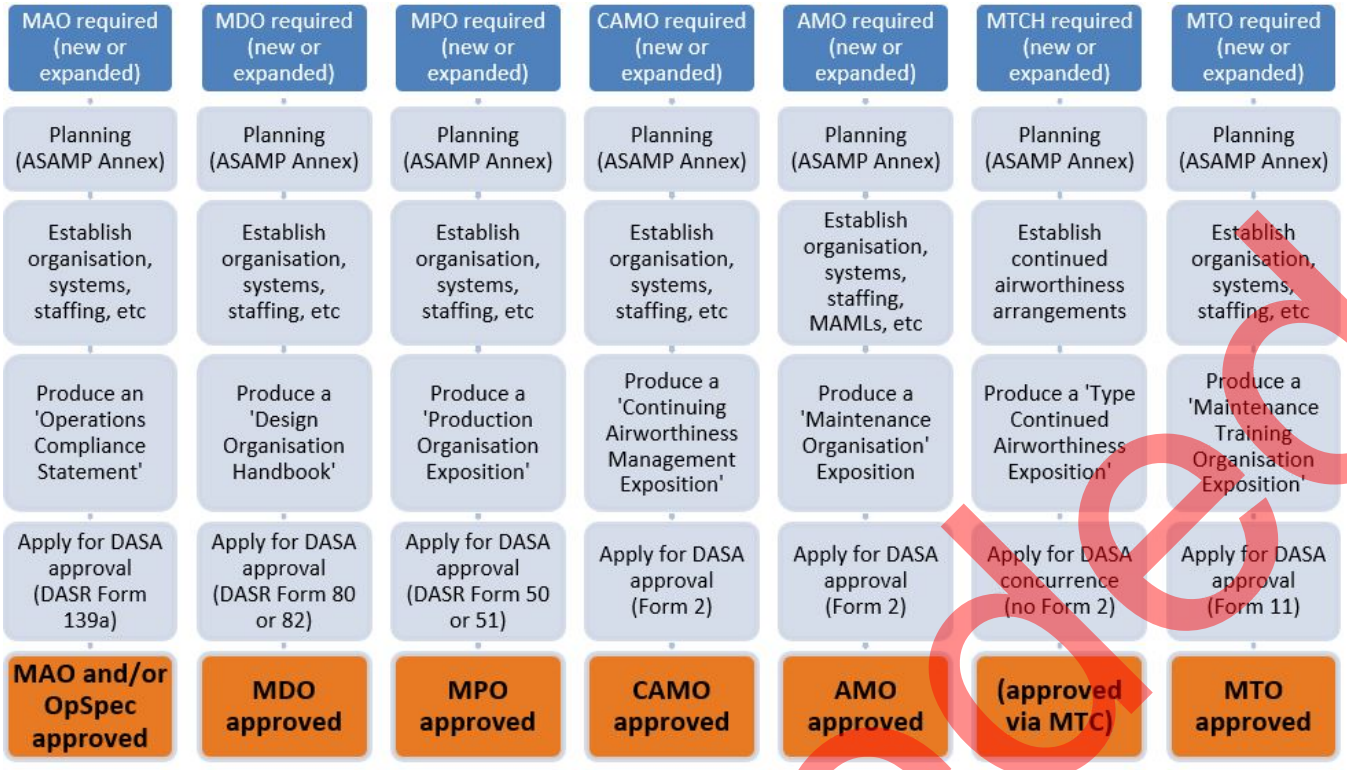


Figure 10: Path to DASA organisational approvals

Activity 3: Product authorisations

6.1.2.76 The four common product authorisations for new aircraft are the MTC, MCoA, MPTF and AMP. While an MPTF will often be issued prior to an MTC and MCoA, preparatory work on the other two will usually precede and support the issue of the MPTF. Hence, this section will consider the MPTF last.

6.1.2.77 Before exploring the four product authorisations, some brief discussion on safety risk management is warranted. Risk management is almost always a contributor to MTC and MPTF authorisations, so all stakeholders need to be conversant with Defence's 7-step risk management approach, as explained in the DASA Advisory Circular 003/2018, Risk Management in the DASP. Furthermore, DASA's experience is that this risk management is most effective when all parties robustly consult, cooperate and coordinate with each other. Critically, this must occur across organisational boundaries, and across specialisations (most notably between operators and engineers).

6.1.2.78 **MTC.** Achieving an MTC for a new aircraft is a significant milestone for an aircraft acquisition project, and one that commonly takes substantial planning and effort. While the path to an MTC is explored in DASP Manual Volume 3 Chapter 7.2, Certification, for the benefit of readers not needing that depth of information, a brief description of the process is included here.

Superseded

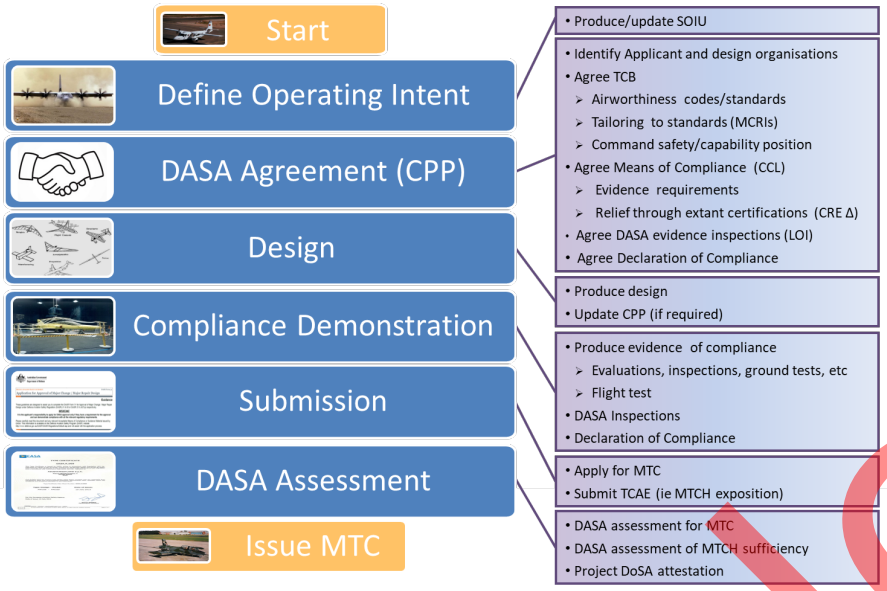


Figure 11: Path to issue of an MTC

6.1.2.79 An overview of the type certification process, culminating in an MTC, is shown in Figure 11. The first step, defining the operating intent for the aircraft, is pivotal to designers producing a design that is safe for Defence's intended Configuration, Role and Environment (CRE). A poorly-developed operating intent, or one developed late in the design lifecycle, can (and previously has) resulted in:

1. additional cost to re-design elements of the aircraft
2. operational limitations to eliminate the elevated risk, or
3. management and retention of elevated risk, often for the life of the aircraft.

6.1.2.80 The second step shows the Applicant and DASA agreeing on a Certification Program Plan (CPP). While a CPP is not explicitly required by DASR, it is inconceivable that Defence would pursue a certification program without an agreed CPP, since it imposes obligations on both the Applicant and DASA. Critically, the CPP:

1. agrees on the Type Certification Basis (TCB) for the new aircraft, which comprises the airworthiness requirements (inclusive of tailoring) that the design must meet
2. agrees on the evidence that will be produced by the design organisation(s) to demonstrate the design complies with the TCB
3. agrees on the application of 'recognition of prior acceptance', where existing product certifications by DASA-recognised NAA/MAAs will contribute to the certification of Defence's new aircraft [22]
4. defines the extent of DASA's inspections of compliance demonstration evidence.

Superseded

6.1.2.81 The tailoring of the TCB, mentioned in the first sub-paragraph above, is accomplished using one of five types of Military Certification Review Item (MCRI)[23]. Four of these MCRIs either maintain or improve the safety of the aircraft design, while the fifth, the 'Exception MCRI', can approve a reduction in the safety of the aircraft design. This reduction is only justifiable where requiring compliance with a TCB requirement would adversely affect Defence capability. While DASA ultimately approves the Exception MCRI, it is based heavily on Command's confirmation that a capability imperative exists, and that the risks due to the TCB non-compliance have been eliminated or otherwise minimised SFARP. The document used to communicate and record these Command risk decisions is normally the Airworthiness Issue Paper (AwIP). Guidance for AwIPs is provided at annex C.

6.1.2.82 The third step in the certification process is where the design organisation produces the design. For new Defence-unique designs, this often requires a DASA-approved MDO unless the design will be certified by a DASA-recognised NAA/MAA, as explained earlier in this chapter. The MDO must be in place before the design effort commences.

6.1.2.83 The fourth step, Compliance Demonstration, is where the MDO produces evidence that their design meets the DASA-agreed TCB. This step may require DASA approval of an MPTF to enable flight testing if the aircraft is already on the Defence Register. The MPTF is explored later in this section.

6.1.2.84 The fifth and six steps wrap up the certification process, and are largely self-explanatory. It is worth noting that while an Airworthiness Board (AwB) is not a prerequisite for DASA issue of an MTC, if the Defence Aviation Authority (Defence AA) elects to convene an AwB near to the MTC issue date, then DASA may wait until after that event to issue the MTC. AwBs are explored later in this chapter.

6.1.2.85 **MCoA.** As noted previously, an MCoA cannot be issued prior to the MTC. However, it is normal practice for the Defence acquisition organisation to be prepared in advance, so DASA[24]can issue MCoAs for the delivered fleet directly following the issue of the MTC. DASPMAN Volume 3 Chapter 5.3 presents the conditions and processes for MCoA issue.

6.1.2.86 **MPTF.** Once a new aircraft type has been added to the Defence Register, but prior to issue of the MTC, MAOs may need to operate the aircraft. For example, the flight test MAO may need to conduct flight tests to generate compliance demonstration evidence, and to contribute to operational test and evaluation (OT&E). The operational MAO may need to maintain crew currency, evolve OIP, conduct OT&E, and so on.

6.1.2.87 DASA can issue an MPTF if the aircraft design has been shown to substantially comply with its TCB, the configuration of the aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions, and any elevated risk has been justifiably retained. An MPTF is effectively reliant on both the MTC and the MCoA processes being well-advanced.

6.1.2.88 The initial MPTF will usually constrain the MAO's operation of the aircraft. After all, the type certification program is still incomplete so there will be areas of the design that are known to be deficient or where uncertainty still remains, and hence the MPTF will impose commensurate risk controls. DASPMAN Volume 3 Chapter 7.5, Flight Conditions and MPTFs, explores MPTFs and their associated flight conditions, including risk management, the application process, periods of validity, and so on. The MAO will often self-impose additional constraints on flight operations, and will ease these constraints as the systems and personnel skills mature.

Superseded

6.1.2.89 **AMP.** CASG's Reliability and Aircraft Maintenance Program (RAMP) team, which is collocated with DASA's Melbourne office, provides Defence's centre of expertise for AMPs, and advises DASA on whether an AMP should be approved[25]. Both DASA and the RAMP team should be engaged early in the acquisition phase for guidance on AMP requirements.

Activity 4: Convene an Airworthiness Board

6.1.2.90 As discussed in Chapter 6.1.1, the Defence AA would normally require that an AwB be convened prior to operation of a new aircraft on the Defence Register[26]. The Introduction into Service AwB, normally held immediately prior to the commencement of flight operations, complement regulatory activities conducted by the DASA and build on the confidence of DASA authorisations. This AwB is underpinned by progressive check-ins by the board members with both DASA and the regulated community, focussing on:

1. understanding the status of DASA assurance of relevant products and organisations
2. safety assurance of the collective enterprise (CM, CASG, Industry) introducing the new platform;
3. potential organisational culture hazards; and
4. transition safety risks associated with the introduction of the capability through to reaching initial operational capability milestones.

6.1.2.91 The artefacts submitted by Applicants to the AwB would predominantly consist of already produced project documentation and attestations that collectively summarise the readiness to commence Flight Operations:

1. Airworthiness Plans, Artefacts, Approvals and Authorisations
2. FIC Status and Capability Realisation
3. Integrated Airworthiness System Assessment
4. MAO Risk Management and OIP

6.1.2.92 The Defence AA would normally require progressive AwBs during the initial operating period for a new aircraft, most likely aligned with key Operational Capability milestones. Hence the AwB can explore whether the operational and support systems are maturing commensurately. Periodicity might be influenced by the severity of organisational and/or product deficiencies noted during DASA assurance activities and/or a previous AwB.

6.1.2.93 Annex D presents additional guidance on the submissions, requirements and conduct of an AwB for a new aircraft type.

Superseded

Activity 5: Follow-up DASA assessments

6.1.2.94 The organisational and product authorisation requirements presented in this chapter are seldom wholly implemented when the Applicants apply for the relevant DASA authorisations. Provided DASA is satisfied the safety risks due to the deficiencies can be robustly managed, this may not preclude DASA from issuing the authorisation, as explored in the following paragraphs.

6.1.2.95 **Organisational approvals.** When DASA initially issues an organisational approval, the processes and people may not yet have been exercised for the new aircraft type. For example, an MDO may not have produced designs, the MAO may not have exercised its ASMS, organisational deficiencies may have been identified by DASA, and so on. Equally, the organisation may self-identify temporary deficiencies in their own processes and people.

6.1.2.96 These issues may not preclude DASA from issuing the organisational approval if satisfied the organisation has the ability to safely operate and support the aircraft. DASA may elect to moderate this risk through, amongst other things:

1. placing limitations on operations, initially via the initial MPTF and later via the OpSpec
2. initially constraining the 'privileges' that are available to organisations under some regulations
3. re-visiting the organisation soon after their systems and processes have been exercised.

6.1.2.97 Over time, once DASA is assured the deficiencies or lack of experience have been addressed, the constraints may be eased. The Defence AA may convene AwBs to provide additional confidence.

6.1.2.98 **Product authorisations.** As a matter of pragmatism, a MTC can be issued before compliance with the TCB has been entirely demonstrated. As a result, the MTC may include temporary limitations, or the TCB may include temporary Exception MCRIs (with supporting AwIPs documenting essential risk management), pending resolution of the outstanding design issues. Once evidence of TCB compliance is provided to DASA's satisfaction, the limitations or other risk management measures can be progressively removed.

Project completion

6.1.2.99 Even after the above five activities have been substantially completed, residual issues may still be outstanding. Provided these issues are sufficiently few in number and complexity[27], they have been professionally transitioned to the running system, and any associated risks are being managed in the relevant ASMS, DASA will in due course consider the acquisition project to be closed.

6.1.2.100 The residual issues will be monitored by DASA through normal compliance assurance activities.

Niche Applications

Superseded

6.1.2.101 So far, this chapter has focused on new aircraft types being acquired by Defence. This final section will explore three niche applications of the information presented in this chapter, namely fleet additions, acquisition of used aircraft, and Major design changes to in-service aircraft.

Fleet addition aircraft

6.1.2.102 When additional aircraft are to be added to an extant Defence fleet, the guidance presented earlier in this chapter is still mostly relevant, although it can be applied in a substantially abbreviated form. An assessment of each of the five activities from the previous section is presented below.

6.1.2.103 **Activity 1: Agreement on DASA authorisations.** The information presented in the previous section is entirely relevant. That is, the acquisition organisation should engage with DASA before contracts and other agreements are signed, and an agreed path to DASA approvals should be documented in an ASAMP. The ASAMP will be much abbreviated compared to the acquisition of a new aircraft type, and some of the ASAMP annexes will not be required.

6.1.2.104 **Activity 2: Organisational approvals.** Each of the organisational approvals will likely be in place, so this activity is limited to ensuring those organisations can manage the additional workload and (where applicable) the configuration differences of the new aircraft.

6.1.2.105 **Activity 3: Product certifications.** If the new aircraft are precisely the same configuration as the extant fleet, they can simply be listed on the MTC and individual MCoAs then issued for each new aircraft. More likely, however, there will be configuration differences. While other avenues may be acceptable, most often the new aircraft are added to the MTC mirroring the configuration of the extant fleet, and the configuration deltas for the new aircraft are processed as design changes (Major and Minor) to the common type design. If there will be a delay in completing this activity, an MPTF can be used to cover the configuration differences of the additional aircraft.

6.1.2.106 If there are substantial configuration differences to the extant fleet, perhaps even with changes to the TCB, the new aircraft might need to undergo a targeted type certification program that focuses on the configuration deltas. DASA's approval may be reflected as a separate model number on the MTC, or the deltas might be encompassed in a Military Supplemental Type Certificate (MSTC).

6.1.2.107 **Activity 4:** AwB. AwB independent review of additional aircraft would normally be considered as part of the next scheduled sustainment AwB. In exceptional circumstances, a separate AwB may be convened if the acquisition of additional aircraft requires appreciable changes to extant FIC arrangements.

6.1.2.108 **Activity 5:** Follow-up DASA assessments. The information on product deficiencies presented in the previous section is equally relevant to fleet addition aircraft. The information on organisational deficiencies, on the other hand, is unlikely to be applicable; rather, the next routine compliance assurance activity would check how the organisation is coping with the extra workload.

Used aircraft

Superseded

6.1.2.109 Where Defence elects to acquire used aircraft, the guidance presented earlier in this chapter is entirely relevant. However, there are additional actions that will need to be undertaken for Activity 3: Product Certification, namely the provision of additional documentation and the completion of additional inspections to support the issue of an MCoA.

6.1.2.110 **Documentation.** DASR 21.A.174 presents a list of the additional documentation needed for a used aircraft, namely:

1. (if the aircraft originates from a foreign military applying an EMAR based regulations): a Military Airworthiness Review Certificate;

2. (if the aircraft originates from a civil state of registry that is recognised by DASA): an export certificate of airworthiness from the recognised CAA;

3. (if the aircraft originates from elsewhere):

    i. a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer

    ii. a weight and balance report with a loading schedule

    iii. the flight manual and any other manuals required by the Authority of the State of registry

    iv. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness

    v. a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

6.1.2.111 **Inspections.** Used aircraft require a more stringent inspection than new build aircraft, and must be performed by an appropriately qualified, independent and experienced organisation. The inspecting organisation is to conduct a comprehensive review of the aircraft design, maintenance and operational documentation, verified by a physical inspection of the airframe structure, engines and other systems.

6.1.2.112 The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:

1. details of the aircraft inspected, including registration number, manufacturer, serial number, model designation, and Certificate of Airworthiness number

2. last known inspected configuration of the aircraft

Superseded

3. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and lifed component status

4. details of any major structural and life-limited component changes made to items such as wings and tailplane, and a summary of the individual histories of such components, unless new when fitted

5. details of any accidents or incidents in which the aircraft has been involved

6. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated

7. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies

8. a condition assessment of flight safety critical components and fatigue-sensitive structure

9. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection

10. flight manuals and any other manuals.

6.1.2.113 Should Defence be contemplating the acquisition of used aircraft, DASA should be contacted early in the decision process. DAVENG staff in particular will provide the acquisition project with useful guidance.

Major design changes

6.1.2.114 This chapter has so far focused on aircraft acquisitions. However, the content can be extensively applied to particularly complex Major design changes to in-service aircraft. A Major design change is one that has an appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product .

6.1.2.115 Defence currently conducts around 70 Major design changes to its fleet each year. Most of these design changes have little if any significant impact on the aircraft operator or support organisations. Occasionally, however, Defence undertakes a Major design change whose effects pervade the DASP.

6.1.2.116 An example might be an extensive mid-life cockpit upgrade, which will not only challenge the design organisation, it can extensively affect MAO OIP, require simulator upgrades, change the aircrew training curriculum, allow new Performance Based Navigation approvals, require additional maintenance equipment and training, require new production organisations, require parallel operations of two different aircraft configurations for extended periods, and so on. An extensive flight test program to explore human factors and other certification issues might also be required.

Superseded

6.1.2.117 Making such pervasive changes to the aircraft and supporting systems can be a complex undertaking that requires coordination and often robust risk management across multiple organisational boundaries. While it perhaps does not have the complexities of introducing a new aircraft into service, it is far from straightforward and can introduce elevated safety risks if not executed well. In such circumstances, increased independent assurance from DASA is likely to benefit aviation safety.

6.1.2.118 Where DASA, in consultation with the MAO and CASG, identifies a Major design change that warrants this expanded DASA independent assurance, DASA will treat the project similarly to an aircraft acquisition. This may include, for example, increased scrutiny of organisational approvals, a closer assessment of how the new configuration is introduced into service (including, if necessary, imposing temporary operating constraints), greater assurance of risk management decisions, and so on. The Defence AA may require an AwB to be convened to provide an independent review of how well the new configuration has been integrated into Defence.

6.1.2.119 For these Major design changes, the guidance in the previous section is applicable almost in its entirety. Notably, an ASAMP should be raised, albeit some elements will self-evidently either be of limited scope or not applicable. An SOIU update may be required, organisational approvals may need to be expanded, and so on. The only element that is unchanged is the type certification process, since DASA certification oversight is always implemented commensurate with risk, and this is unaffected by the additional DASA scrutiny outlined in this section.

Annexes:

1. Project Initiation Meeting
2. ASAMP Guidance
3. Airworthiness Issue Papers
4. Airworthiness Board Guidance

6.1.3 Acquisition of Non-Defence-Registered Aircraft

Introduction

6.1.3.1 Civil registration of a Defence aircraft may be attractive to Capability Managers (CMs) and acquisition organisations. It may provide contractual and ongoing management simplicity, and sometimes lower costs and result in a faster introduction into service.

6.1.3.2 Regardless of the registration arrangement, Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people, and facilities on the ground. However, in the case of non-Defence-Registered (NDR) aircraft, DASA has a comparatively lesser role in guiding and assisting Command in meeting these obligations.

Purpose

Superseded

6.1.3.3 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators through the aviation safety requirements and recommended practices during the acquisition of an NDR aircraft, but only to the extent, that DASA is involved in the process.

CONTENT UNDER REVIEW

Circa 2023, DASA is currently conducting a major review of the DASA approach and regulations for non-Defence Registered (NDR) aircraft. The review will assess, amongst other things, the legal implications of a State aircraft being regulated by a civil regulator, the need (if any) for DASR regulations to supplement the civil regulations, the role of DASA (if any) in aviation safety assurance, and so on.

Once the review is completed, DASR.NDR and this DASPMAN chapter will be updated. In the meantime, Defence organisations considering the acquisition of a NDR aircraft should contact DASA for advice.

Superseded

6.1. Introduction of New Defence Aircraft Capabilities

6.1.1 Introduction

Background

6.1.1.1 Defence periodically adds aircraft to its inventory to meet a capability need. The aircraft may be purchased or leased, crewed or uncrewed, Defence or civil registered. An essential prerequisite for Defence operation of a new aircraft, regardless of the acquisition arrangement, is for Defence to confirm that it is safe for flight. This encompasses the safety of aircraft occupants, other airspace users, and overflown people and facilities.

6.1.1.2 The acquisition process for a new aircraft begins during the capability development phase of the life cycle, where operational requirements are defined and potential solutions investigated. The Aviation Safety management process commences concurrently with the acquisition process, and remains inextricably linked. Decisions made early in the acquisition process can have an enduring effect on Aviation Safety.

6.1.1.3 For a Defence aircraft to be safe for flight, the aircraft to be appropriately designed, constructed, maintained and operated, as explained in DASP Manual Volume 3 Chapter 3, The Defence Aviation Safety Program. It is the responsibility of aircraft acquisition organisations in Defence, relevant in-service organisations and Defence industry partners, to ensure a Defence aircraft is safe for flight, both from the initial design and throughout its Defence lifecycle. In turn, the relevant Aviation Safety authorities need to gain assurance that the aircraft is safe for flight. If suitably assured, the Aviation Safety authorities can issue a range of 'authorisations', usually in the form of certificates, permits, approvals or licenses.

Purpose

6.1.1.4 This series of chapters aims to guide Defence aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the aircraft acquisition process.

6.1.1.5 This first chapter provides a general introduction to acquiring new Defence aircraft, including registration requirements, Aviation Safety responsibilities, engagement with Aviation Safety authorities and other common concepts.

Applicability

6.1.1.6 This chapter is applicable to the acquisition (whether through purchase, lease or other arrangement) of the following Defence aircraft:

1. Defence registered crewed aircraft
2. Non-Defence registered crewed aircraft (short term)
3. Defence registered certified uncrewed aircraft systems (UAS)

Superseded

6.1.1.7 While the concepts in this chapter are also broadly applicable to Open and Specific category (ie non-certified) UAS, the regulatory approaches for these UAS are substantially different to certified aircraft, so DASP Manual Volume 3 Chapter 10, Uncrewed Aircraft Systems, separately covers their acquisition.

Structure

6.1.1.8 This chapter will provide context for the next four chapters, which will individually cover the three different arrangements for Defence aircraft acquisitions listed in paragraph 6, and as shown in Figure 1.

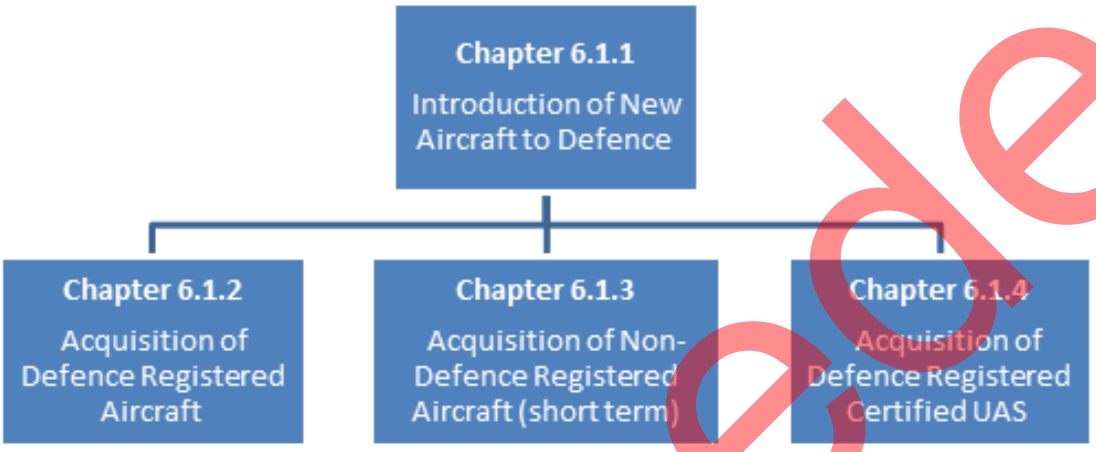


Figure 1: Chapter 6.1 structure

6.1.1.9 This chapter will also provide content that is common to the next four chapters, to avoid duplication.

Aircraft Registration

6.1.1.10 All Defence aircraft, apart from some non-certified UAS, must be included on the Register of a military or civil aviation authority. DASR separates these registrations into two categories; Defence registered aircraft and non-Defence registered aircraft. The latter are almost universally regulated by CASA. While other registrations are occasionally employed, they are always transitory arrangements[1].

6.1.1.11 A Defence registered aircraft is subject to Defence Aviation Safety Regulations (DASR) and DASA safety assurance oversight. An Australian civil registered aircraft, on the other hand, is subject to Civil Aviation Safety Regulations (CASR) and CASA safety assurance oversight as well as some limited DASA oversight.

6.1.1.12 When Defence is procuring an aircraft type that is also used under the civil regulatory framework, an important decision by the Capability Manager, required early in the acquisition process, is to determine whether the Defence aircraft will be Defence registered or civil[2] registered. This registration can have an enduring effect on Defence aviation capability, as summarised below:

1. **Defence registration.** Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR, which make specific allowance for:

   i. uniquely military roles, including weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting

Superseded

hazardous materials and dangerous goods etc — types of operations that may be heavily restricted or unsupportable under civil regulatory requirements

ii. flexibility in the approach to achieving compliance with the DASR

iii. the application of risk management where DASR compliance cannot be shown, provided a credible and defensible level of aviation safety performance is achieved

iv. Commanders to deviate from requirements (2) and (3) above in the event of compelling operational imperatives or emergencies.

DASA is experienced in regulating for the unique military operational context. Consequently, DASA is well-placed to advise Commanders on military aviation safety issues and to provide tailored independent safety assurance of military organisations and products.

2. **Civil registration.** Civil registration can initially be attractive to Capability Managers and acquisition organisations due to the simplicity of contractual and ongoing management, and potential faster introduction of the aircraft into service. However civil registration should only be considered for short term arrangements, or where an aircraft will not be considered a continuous 'State' aircraft. Complicating factors include that:

i. it can bind Defence to civil aviation safety regulations for design, maintenance and operation, and these regulations have not been customised to the unique military aviation context

ii. there may be a lack of risk-managed operational flexibility, which is the hallmark of Defence's aviation safety regulations

iii. it can bind Defence to the potential inflexibilities of the civil regulator

iv. there may be adverse diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas.

6.1.1.13 Where a Capability Manager is considering civil registration for a temporary Defence aircraft, DASA should be engaged at the earliest practicable opportunity for consultation. Annex A presents a list of issues that should be explored during this engagement, to assist the Capability Manager in making an informed decision on Defence registration versus civil registration.

6.1.1.14 Annex B presents guidance on the structure and administration of the Defence Register.

Aviation Safety Responsibilities

6.1.1.15 DASP Manual Volume 1 states that aviation safety is a command responsibility, so commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.1.16 The responsibility for ensuring (ie making sure) a new Defence aircraft is safe for flight falls directly on the Defence acquisition organisations and the relevant in-service support organisations. This includes, amongst other things, ensuring:

1. the aircraft design is safe for flight in the intended role and operating environment (ie aircraft design and certification)

Superseded

2. the physical aircraft standard of construction meets that design (ie aircraft production)

3. arrangements are in place to ensure the design remains safe (ie continued airworthiness)

4. arrangements are in place to ensure the aircraft remains in a condition for safe operation (ie continuing airworthiness)

5. arrangements are in place to design future changes and repairs (ie aircraft design)

6. operators are able to safely operate the aircraft (ie flight operations).

6.1.1.17 The role of DASA, on the other hand, is to gain assurance that the above elements have been executed effectively.

Aviation safety authorisations

6.1.1.18 When assured of safety, the relevant military or civil aviation safety authority (whether DASA or CASA) may issue a range of authorisations, often in the form of certificates, permits, approvals or licenses. For Defence registered aircraft, the list of authorisations is expansive, potentially comprising up to 12 different types of organisational, product and personnel authorisations. For civil registered aircraft, CASA will issue the civil equivalents to some or many of these 12 authorisations. Chapters 6.1.2 to 6.1.5 explore the Aviation Safety authorisations that may be issued by DASA and CASA for each acquisition category.

6.1.1.19 While DASA does not issue authorisations for civil registered aircraft, DASA may require that the aircraft are included within the scope of the Military Air Operator (MAO), issue a relevant Operations Specification (OpSpec) and conduct limited safety assurance oversight.

6.1.1.20 **Planning and coordination.** Aviation Safety authorisations issued by DASA or CASA are a major milestone in the aircraft acquisition process. Establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with the appropriate Aviation Safety authority (DASA for Defence registered aircraft, and both CASA and DASA for civil registered aircraft) is therefore in the best interests of all parties.

6.1.1.21 Engagement should ideally commence as soon as the Defence acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[3]. Engagement should be well advanced before Defence publishes any tender documents (eg Requests for Tender, Foreign Military Sales requests, etc) that may later affect an authorisation.

6.1.1.22. For civil registered aircraft, CASA will provide guidance on how to achieve the civil authorisations that will be required. DASA will do likewise for the new OpSpec, if one is to be published. This development of this DASA authorisation is far from a trivial endeavour. Not only does it cover the flying management of the MAO and other operational systems for the new aircraft, it also assesses whether the entire aviation safety construct (inclusive of all CASA authorisations) is likely to support safe Defence aviation.

6.1.1.23 For Defence registered aircraft, DASA will provide guidance on how to achieve the required DASA authorisations. Some additional guidance is available through DASA-sponsored courses and website resources.

Superseded

6.1.1.24 Chapters 6.1.2 to 6.1.4 provide tailored guidance on how engage with the relevant Aviation Safety authorities, since this varies widely between civil and Defence registered aircraft, and crewed and uncrewed aircraft.

6.1.1.25 **Documented agreements.** DASRs do not mandate any formal plans or agreements for achieving DASA authorisations. However, it is a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage Aviation Safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.1.26 For both Defence and civil registered aircraft, DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies. It describes, amongst other things, the overarching acquisition strategy in the context of Aviation Safety and brings together the planned outcomes of the operational, technical, logistical and safety management activities.

6.1.1.27 The ASAMP should be drafted after the acquisition strategy solidifies, nominally following government acquisition approval, but before RFTs (or equivalent) are released. While ASAMPs have previously been drafted before initial contact with DASA has been made, this is rarely an efficient approach. The ideal time to draft the ASAMP is soon after the initial meeting with DASA, given that meeting will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since this is the stage where the scope of most authorisations should be clear.

6.1.1.28 Chapters 6.1.2 to 6.1.5 provide guidance on the production of ASAMPs, tailored to the particular acquisition arrangement. ASAMP content varies widely between civil and Defence registered aircraft, with the latter including plans for achieving up to 12 different DASA authorisations. While the differences between crewed and uncrewed aircraft ASAMPs are less significant, the latter will focus on the unique challenges of separating the crew from the aircraft and the additional transitional authorisations that may be available for certified UAS.

Common Concepts

6.1.1.29 The next four chapters are dedicated to the four acquisition arrangements listed at Paragraph 6.1.1.6. To avoid duplication in those chapters, the remainder of this chapter will introduce several concepts that are likely to be common to each acquisition arrangement.

Recognition

6.1.1.30 Aviation Safety authority may acknowledge that products, services and data received from another Aviation Safety authority and the respective system they oversight are compatible within their own Aviation Safety framework. This concept, known as ‘recognition’, is extensively employed for new Defence aircraft acquisitions. Regardless of whether a new aircraft is Defence registered or not, recognition will almost certainly be applied for aircraft design and production. For non-Defence registered aircraft, recognition will also contribute to Defence’s confidence in aircraft maintenance and operation. DASP Manual Volume 3 Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

6.1.1.31 Where recognition is being considered for a certified UAS, DASA advice should be sought. Certified UAS are not yet commonplace, so the competence and capability of international Aviation Safety authorities in regulating and oversighting certified UAS is still evolving.

Superseded

Statement of Operating Intent and Usage (SOIU)

6.1.1.32 DASRs require all Defence registered aircraft and certified UAS (and certain other UAS when directed by the Authority) to have a Statement of Operating Intent (SOIU) that has been approved by the relevant Environmental Commander and DASA. The SOIU describes the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type.

6.1.1.33 Development of an SOIU is not mandatory for a non-Defence registered aircraft, but may assist MAOs with establishing the operational context of their intended operations, to assist with identification of any additional safety controls required to provide an equivalent level of safety to that of Defence registered aircraft.

6.1.1.34 Annex C presents further information and development guidance for SOIUs.

Independent Review of Aviation Safety

6.1.1.35 DASP Manual Volume 3 Chapter 6, Independent Review of Aviation Safety, provides information on the scope and role of Airworthiness Boards (AwBs) within the framework of capability acquisition.

6.1.1.36 Historically, AwBs were identified as a 'gate' for issuance of some DASA authorisations. The contemporary role of the AwB in the acquisition process is to complement the role of the regulator in addressing parts of the 'system of systems' that are not adequately covered through regulatory oversight activity. DASA identifies that this increases flexibility and reduces the impost on the regulated community.

6.1.1.37 Chapters 6.1.2 to 6.1.4 provide guidance on the documentation package provided to Introduction into Service (IIS) AwBs for each acquisition type. The documentation will commonly consist of:

1. the extant submissions for the relevant DASA authorisations
2. an updated ASAMP which reflects the status of the acquisition program, details and plans for outstanding activities, and impact statements and associated risk management for outstanding activities
3. checklists and other artefacts.

6.1.1.38 An AwB is commonly convened prior to the first operation of a Defence registered aircraft, due to the often complex nature of organisational, risk management and other elements. Notwithstanding the aforementioned, there is no regulatory impediment to commencing limited operations, commensurate with risk, prior to the conduct and reporting of an IIS AwB. Progressive AwBs may be convened as the organisations and operational capabilities evolve.

6.1.1.39 An IIS AwB may be less common for non-Defence registered aircraft given that Defence aircraft that are continuous 'State' aircraft should be Defence registered. When determining whether an AwB is required, the Defence AA may take into account the complexity of support arrangements, whether Defence's operations are closely aligned to civil norms, and other similar factors.

Annexes:

(a) Aircraft Registration Discussion Points

(b) Defence Registration

Superseded

(c) Statement of Operating Intent and Usage (SOIU)

6.1.2 Acquisition of (Crewed) Defence Registered Aircraft

Introduction

6.1.2.1 Aviation safety is a command and management responsibility. Commanders and senior managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.2.2 Provided the aircraft and its support and operating arrangements meet the relevant Defence Aviation Safety Regulation (DASR) requirements, DASA may issue a range of 'authorisations', in the form of certificates, permits, approvals or licenses. These authorisations provide confidence to both the Capability Manager and the Australian Government that the aircraft is capable of safe flight.

6.1.2.3 While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that additional guidance is needed if safety risks are to be efficiently and effectively eliminated or otherwise minimised so far as is reasonably practicable.

Purpose

6.1.2.4 This chapter guides Defence's aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the acquisition (whether through purchase, lease or other arrangement) of crewed aircraft that will be Defence registered.

Regulatory outcomes from the acquisition process

6.1.2.5 For a new Defence registered aircraft to operate, Command must ensure it is safe for flight. Command achieves this by ensuring the aircraft are designed, constructed, maintained and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation. In turn, if suitably assured of safety, DASA may issue a range of authorisations. Depending on the acquisition and support arrangements, this can extend to 12 different types of organisational, product and personnel authorisations, as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Military Design Organisation (MDO)
    iii. Military Production Organisation (MPO)
    iv. Approved Maintenance Organisation (AMO)
    v. Continuing Airworthiness Management Organisation (CAMO)
    vi. Maintenance Training Organisation (MTO)
    vii. Military Type Certificate Holder (MTCH) (currently an implicit authorisation)
2. product authorisations:

Superseded

i. Military Type Certificate (MTC) and associated Type Certificate Data Sheet (TCDS)

ii. Military Permit to Fly (MPTF)

iii. Aircraft Management Programme (AMP)

iv. Military Certificate of Airworthiness (CoA)

Note: *In addition, it may include a range of niche authorisations, for example a product conformity agreement, master minimum equipment list, and so on.*

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: *DASA directly authorises certain management personnel within approved organisations. However, those authorisations are considered to be part of the organisational approval process in this chapter, so they are not separately listed here.*

6.1.2.6 Figure 1 summarises the range of DASA authorisations that are usually relevant to a new aircraft acquisition, grouped according to their relevance to aircraft design, construction, maintenance or operation. The subsequent paragraphs separately explore each group.

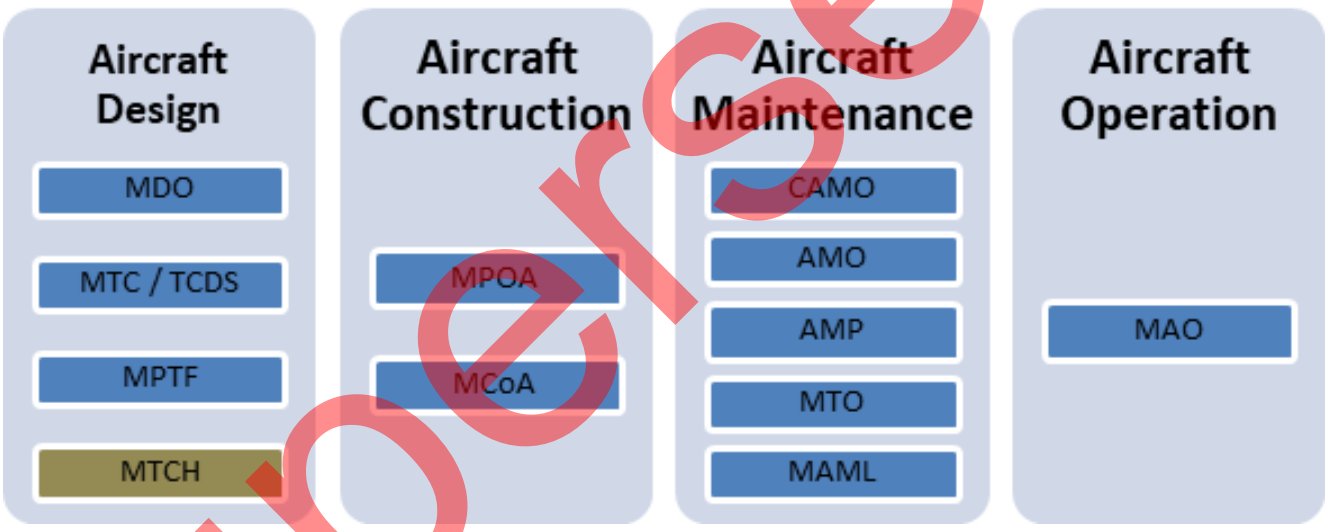


Figure 1: DASA authorisations relevant to Defence aircraft acquisitions[4]

Aircraft design (and certification)

6.1.2.7 New Defence crewed aircraft will normally be civil or military 'off-the-shelf' aircraft that are subsequently modified to meet Defence's capability requirements. Ensuring the final aircraft design is safe for flight in Defence's intended Configuration, Role and Environment (CRE) is a critical step in the acquisition process. Four separate DASA authorisations are relevant to this process, design, construction, maintenance or operation.

6.1.2.8 **Military Design Organisation (for initial aircraft design).** An organisation that has been approved by DASA to provide aircraft design services for a new Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a military or industry organisation, and may be located in Australia or overseas. MDOs are often required for the design of new Defence aircraft,

Superseded

although as explored in the next four paragraphs, this requirement can be reduced, or even eliminated, in some circumstances.

6.1.2.9 **Military Type Certificate.** The Defence type certification process is central to confirming that the aircraft design is safe for Defence's intended Configuration, Role and Configuration (CRE) for the aircraft. At its core is the Type Certification Basis (TCB), which is a DASA-agreed set of airworthiness design requirements, including an airworthiness code and other standards, and tailoring to both as required.

6.1.2.10 At its extreme, type certification requires a DASA-approved MDO to create an aircraft design that complies with the TCB, and to produce evidence that demonstrates this compliance. In turn, DASA examines the evidence on a non-exhaustive basis, and if assured of safety, issues a Military Type Certificate (MTC)[5] and associated TCDS.

6.1.2.11 There is, however, a shortcut to the above approach that is employed for most Defence aircraft acquisitions. When Defence is procuring off-the-shelf aircraft or equipment, the Applicant[6] may seek relief from the need to develop new compliance demonstration evidence, to the extent an extant certification by a recognised National or Military Aviation Authority (NAA/MAA) is relevant to Defence's CRE. This is known as 'recognition of prior certification'. In rare circumstances, DASA can certify an entire new aircraft based solely on the prior certification of another NAA/MAA.

6.1.2.12 More commonly, however, Defence aircraft acquisitions employ a combination of the above two processes. That is, recognition of prior certification is used to cover the design of the off-the-shelf aircraft, and a DASA-approved MDO designs the Defence-unique modifications and produces the requisite compliance demonstration evidence. Sometimes another NAA/MAA may agree to certify some or all of the Defence-unique modifications, which may reduce or even remove the need for a DASA-approved MDO.

6.1.2.13 **Military Type Certificate Holder.** The MTC for a new Defence aircraft is issued by DASA to the Military Type Certificate Holder (MTCH), who takes on responsibility for ensuring the 'continued airworthiness' of the design[7]. This role is normally assigned to the relevant Defence SPO, who will implement standing arrangements with other Defence organisations, industry partners, and perhaps other militaries, to support the function. Amongst other things, the MTCH organisation is responsible for implementing systems for collecting, investigating and analysing aircraft occurrences which may affect its airworthiness, and holding (or providing access to) aircraft design information.

6.1.2.14 Note that DASA does not currently issue an explicit organisational approval for MTCHs, although this may change. Instead, the proposed MTCH arrangement is evaluated by DASA as part of its deliberations on whether to issue a MTC.

6.1.2.15 **Military Permit to Fly.** It is possible for DASA to issue a MTC for a new aircraft type immediately upon its addition to the Defence Register. More likely, however, there will be a period where the aircraft is not yet ready for a MTC because, for example:

1. the aircraft design is still under development
2. compliance demonstration evidence is still being created or compiled
3. Defence's MTC will leverage off the certification of another NAA/MAA, which is yet to be finalised

Superseded

6.1.2.16 DASA can issue a Military Permit to Fly (MPTF) to a MAO[8] in advance of the MTC if satisfied the aircraft design substantially complies with its agreed TCB, the configuration of the subject aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions and for specified purposes, and any elevated risk has been justifiably retained. However, since the MPTF will usually impose (often significant) risk controls that limit the operation of the aircraft, extended operations under an MPTF are not common.

6.1.2.17 **Military Design Organisations (for in-service support).** Finally, throughout an aircraft's operational life, design changes are inevitable to remedy design defects, address obsolescence issues, design repairs, implement capability enhancements, and so on. These design changes will often be the purview of one or more DASA-approved MDOs, which are typically (but not essentially) the same as the MDOs that support the MTCH function.

6.1.2.18 Ultimately, both the MTCH and Continuing Airworthiness Management Organisation (CAMO – see below) must be able to demonstrate that sufficient design support arrangements are in place to maintain the safety of the aircraft[9], before a new aircraft is operated on the Defence Register. Depending on the aircraft acquisition contract, this design support function might initially be provided by the aircraft Original Equipment Manufacturer (OEM); if so, the in-service MDOs might not be needed immediately.

6.1.2.19 **Summary.** Summarised, the four DASA design-related authorisations that are usually relevant to aircraft acquisitions are presented in Figure 2. The MTCH is depicted in a different colour, to show that DASA does not (yet) directly issue an MTCH approval.

Figure 2: DASA authorisations related to aircraft design

6.1.2.20 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MDOs, MTCs, MPTFs and MTCHs.

Aircraft production (or construction)

6.1.2.21 A MTC focuses on the safety of an aircraft's design. It does not consider the subsequent manufacture and assembly of the design, which is the purview of aircraft production (or

Superseded

'construction' in historic Defence parlance). The two DASA authorisations relevant to new aircraft production are Military Production Organisations and Military Certificates of Airworthiness.

6.1.2.22 **Military Production Organisation.** A Military Production Organisation (MPO) is a DASA-approved organisation that can manufacture and assemble parts, appliances, aircraft, engines or propellers to approved design data[10]. In the context of a Defence aircraft acquisition, MPOs can manufacture and assemble both the baseline aircraft (often called the 'green' aircraft) and the Defence-unique modifications to the green aircraft. They may be the same organisation, or there may be multiple different MPOs.

6.1.2.23 More commonly for new aircraft, however, Defence leverages the oversight provided by a DASA-recognised NAA/MAA of certain production organisations. This can reduce, or even eliminate, the need for DASA-approved MPOs.

6.1.2.24 **Military Certificate of Airworthiness.** As noted previously, a MTC is issued for an aircraft type. A separate DASA authorisation needs to subsequently be issued for each aircraft tail, namely the Military Certificate of Airworthiness (MCoA)[11], once DASA is satisfied the produced aircraft conforms to the design covered by the MTC. Central to DASA issuance of a MCoA is evidence that each product, part or appliance conforms to the approved design data and is in condition for safe operation.

6.1.2.25 A MCoA cannot be issued prior to the MTC. Where a new Defence aircraft is to be flown under a MPTF prior to the issue of a MTC, the MPTF effectively provides the function of the MCoA. As part of the process for seeking a MPTF, an applicant will need to demonstrate that the produced aircraft does indeed conform to the currently approved design data.

6.1.2.26 **Summary.** Summarised, the two DASA production-related authorisations that are usually relevant to new aircraft acquisitions are presented in Figure 3.

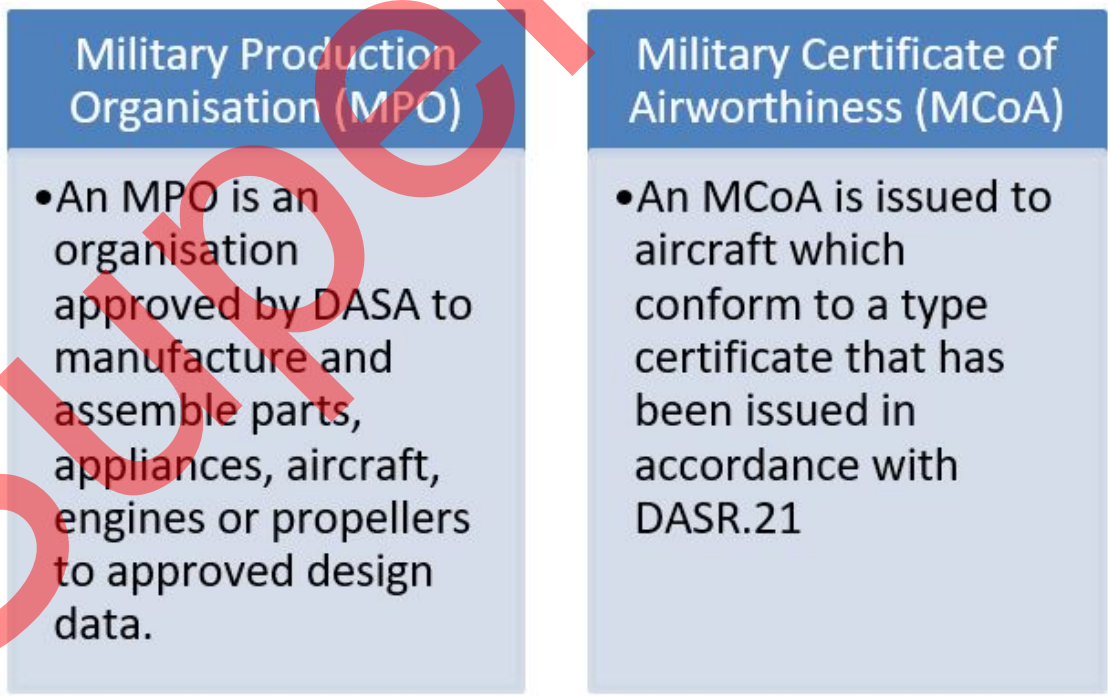


Figure 3: DASA authorisations related to production

6.1.2.27 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MPOs and MCoAs.

Superseded

Aircraft maintenance (continuing airworthiness)

6.1.2.28 While Defence has long used the colloquial term of 'aircraft maintenance' to cover airworthiness activities beyond aircraft design and production, the DASRs purposely use the more expansive term of 'continuing airworthiness'. Aircraft maintenance is any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component. Continuing airworthiness encompasses this, plus maintenance management, maintenance training and maintenance licensing. For completeness, this section will use the term 'continuing airworthiness'.

6.1.2.29 Robust continuing airworthiness arrangements must be in place prior to the operation of a new Defence aircraft. Once assured of the sufficiency of these arrangements, DASA may issue three relevant organisational approvals, namely Continuing Airworthiness Management Organisations, Approved Maintenance Organisations and Maintenance Training Organisations. DASA may also approve Aircraft Maintenance Programmes and issue Military Aircraft Maintenance Licences to eligible personnel.

6.1.2.30 **Continuing Airworthiness Management Organisation.** Continuing Airworthiness covers all processes that ensure an aircraft continues to comply with initial airworthiness requirements and supports the ongoing validity of the aircraft's MCoA. The Continuing Airworthiness Management Organisation (CAMO), while not directly responsible for actual aircraft maintenance, is responsible for engaging organisations to conduct design and maintenance services. The CAMO will:

1. engage MDO(s) for design services as required
2. engage the MTCH for any matters that impact the aircraft's type design and type certification under MTC or an individual aircraft's CoA]
3. task AMOs to maintain products (aircraft, engines and propellers), parts and appliances and
4. provide governance and oversight to organisations performing DASR M functions on its behalf.

6.1.2.31 In most cases, the acquisition of a new aircraft type will not result in the creation of a new CAMO; rather, the scope of an extant CAMO will be expanded to include the new aircraft type. The presence of a suitable CAMO is integral to DASA's approval of a new MAO, or adding an additional aircraft to an extant MAO's scope.

6.1.2.32 **Aircraft Maintenance Organisations.** DASR provides two avenues for the maintenance of an aircraft and its components. The first is a DASA-approved Approved Maintenance Organisation (AMO), and the second is 'another maintenance organisation accepted by DASA'. A combination of both is usually employed for Defence aircraft.

6.1.2.33 An AMO is an organisation approved by DASA to conduct aircraft maintenance activities. This includes all actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness. AMOs may be a military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types. New Defence aircraft may be supported by one or several AMOs.

6.1.2.34 DASR Part M makes provision for maintenance services to be consumed from other maintenance organisations that are accepted by DASA. While the regulation infers that DASA explicitly accepts each of these maintenance organisations, this is not normally the case. Rather,

Superseded

DASA will automatically accept a maintenance organisation provided it is oversighted by a NAA/MAA that is 'recognised' as competent by DASA, and provided the CAMO ensures the conditions and caveats on the relevant 'recognition certificate' are met. Recognition certificates for each NAA/MAA recognised by DASA are available on DASA's website.

6.1.2.35 Prior to operation of a new Defence aircraft, the CAMO must demonstrate that arrangements are in place to maintain the aircraft in an airworthy condition. In limited circumstances, DASA may agree to the temporary absence of some maintenance arrangements, but only where this does not affect the near-term support of the aircraft.

6.1.2.36 **Aircraft Maintenance Programme.** An Aircraft Maintenance Programme (AMP) describes the scheduled maintenance tasks, their frequency of completion, the associated maintenance procedures, and so on, necessary to preserve the airworthiness of the aircraft. For aircraft acquisition projects, an initial AMP must be approved by DASA prior to the conduct of any maintenance activities. Maintenance activities can in some cases pre-date flying operations on the Defence Register, since they include aircraft preservation and other maintenance tasks required to prepare the aircraft for operation.

6.1.2.37 **Military Aircraft Maintenance Licenses.** AMOs require some personnel to hold particular categories of Military Aircraft Maintenance Licences (MAMLs). Furthermore, in order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML requires their licence to be endorsed with the relevant aircraft type ratings. As part of the AMO approval process for a new aircraft, the AMO will need to demonstrate that its personnel hold sufficient and applicable MAMLs.

6.1.2.38 **Maintenance Training Organisation.** A Maintenance Training Organisation (MTO) conducts training and examinations for maintenance personnel as specified in DASR 66. While a new MTO would rarely be required for a new Defence aircraft, an extant MTO would need to demonstrate its competence to conduct the type/task training and assessments for the new aircraft.

6.1.2.39 **Summary.** Summarised, the five DASA authorisations related to continuing airworthiness (of which maintenance is a component) of Defence aircraft acquisitions are presented in Figure 4.

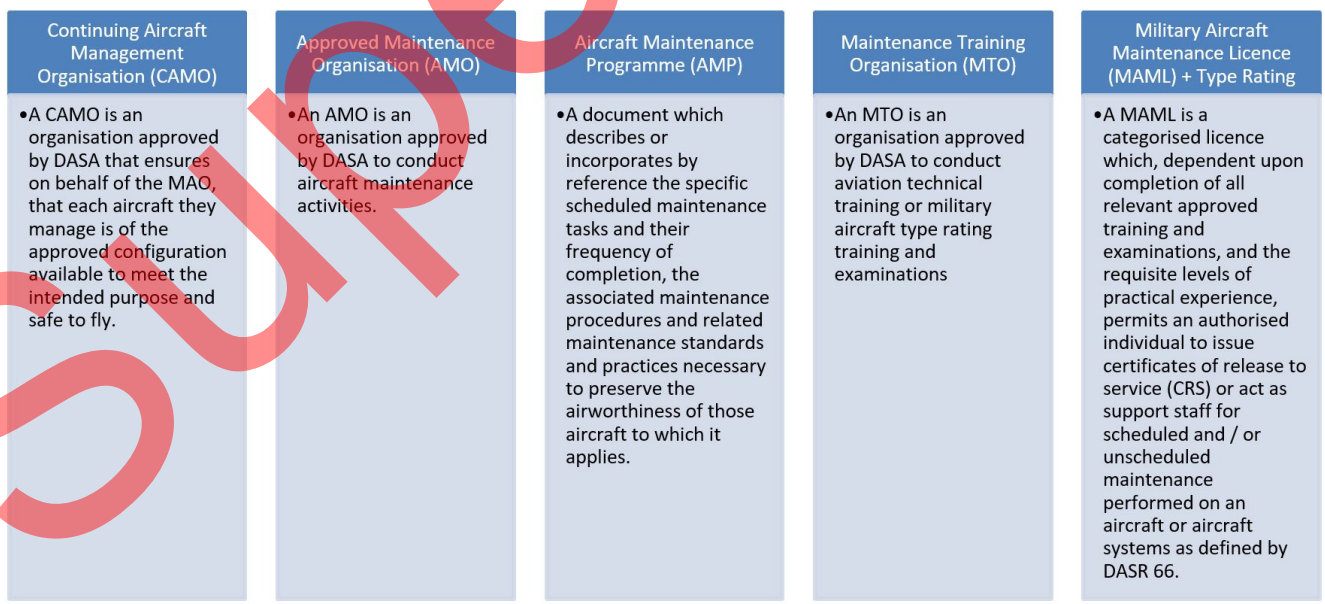


Figure 4: DASA continuing airworthiness-related authorisations

Superseded

6.1.2.40 DASPMAN Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into CAMOs, AMOs, AMPs, MTOs and MAMLs.

Aircraft operation

6.1.2.41 A Military Air Operator Certificate (MAOC) is the principal authorisation granted by DASA to conduct military air activities. Each aircraft type operated by the MAO is authorised by a separate DASA-issued Operations Specification (OpSpec) annex. The OpSpec annex details, amongst other things, key positions of the MAO, operating provisions, roles and tasks, specific approvals, and any limitations or conditions imposed by DASA.

6.1.2.42 The relevant OpSpec annex is required before first flight of the aircraft by the MAO[12]. DASA will issue the OpSpec annex once assured that the necessary Fundamental Inputs to Capability (FIC) elements, as well as quality and safety management systems, are in place to support intended operations.

6.1.2.43 Preparing a MAO to take on a new Defence aircraft can be a substantial undertaking. Amongst other things, for the new aircraft type the MAO will need to:

1. define the operating intent and usage for the aircraft through an approved Statement of Operating Intent and Usage (SOIU)
2. ensure arrangements are in place for maintaining the airworthiness of the aircraft through a CAMO and AMOs
3. implement the multitude of systems needed to manage Operations personnel and Air operations
4. produce/accept Orders, Instructions and Publications (OIP)[13]
5. establish an Aviation Safety Management System (ASMS).

6.1.2.44 Implementing these requirements, even for an existing MAO, is likely to require considerable planning and effort. Consequently, DASA recognises that a graduated capability growth plan for operational authorisations may be required. The Aviation Safety Acquisition Management Plan (ASAMP - see Chapter 6.1.1 and later in this chapter) is a suitable repository for reflecting the status of the acquisition program, including details of work completed, re-programing of remaining activities and risk management for the incomplete tasks.

6.1.2.45 **Summary.** Summarised, the singe DASA flight operations-related authorisation relevant to aircraft acquisitions is presented in Figure 5.

Superseded

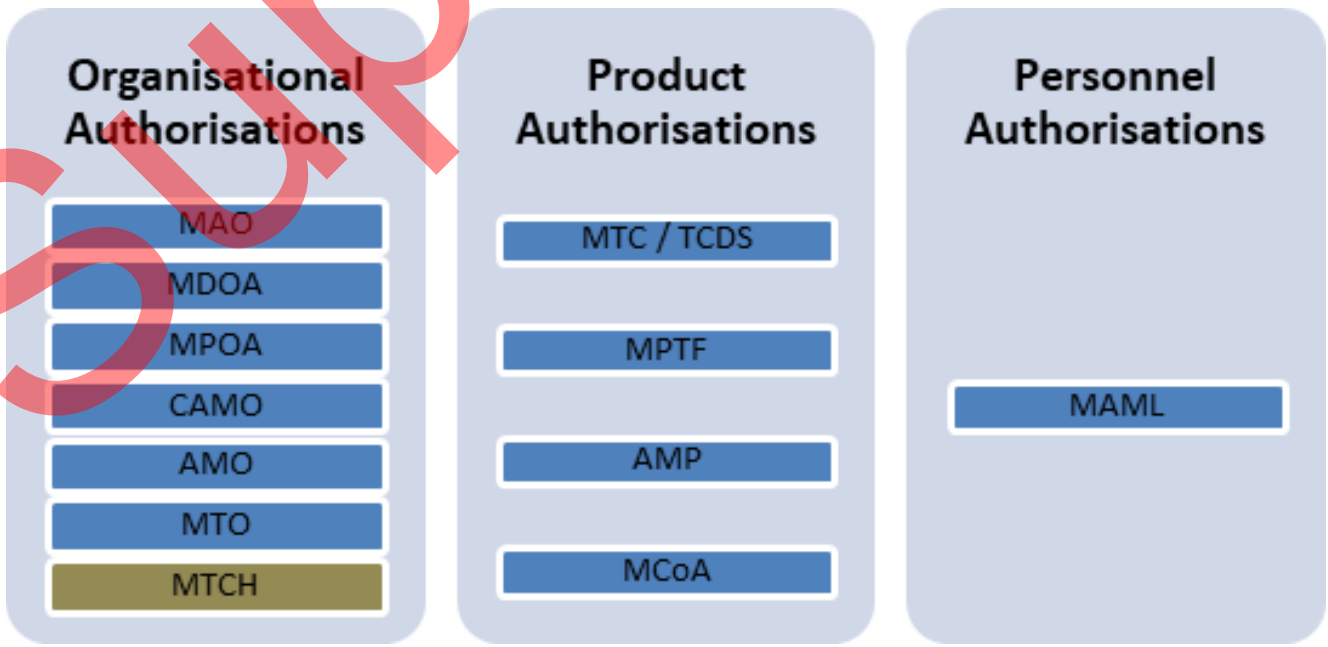
Figure 5: DASA authorisations related to aircraft operations

6.1.2.46 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MAOs.

Summary

6.1.2.47 This section has presented an overview of the DASA authorisations that may be relevant to new aircraft design, construction, maintenance and operation. Depending on the acquisition arrangements and the aircraft role, some authorisations might not be required.

6.1.2.48 The diagram at the start of this section (Figure 1) summarised all of the possible DASA authorisations according to whether they were relevant to new aircraft design, construction, maintenance or operation. However, another way of grouping them is according to whether they are organisational, product or personnel authorisations, as shown in Figure 6.



Superseded

Figure 6: DASA authorisations for new aircraft (grouped by category)

6.1.2.49 This grouping has the advantage that the eight organisational authorisations all use substantially the same processes for application and approval, and the three product authorisations have strong synergies. Consequently, for simplicity, this grouping will be used in the next section.

Processes, Plans and DASA Interaction

6.1.2.50 The previous section presented an overview of the DASA authorisations that may be relevant to new aircraft acquisitions. While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that achieving the authorisations can be a complex and protracted journey. This section guides the reader though the process of achieving these DASA authorisations.

6.1.2.51 Figure 7 shows how the various DASA authorisations usually fit onto a project timeline. The vertical stripes present four significant milestones for introducing a new aircraft to Defence, the items above the dashed line show DASP-related project and Command activities, and the items below the line show the DASA authorisations. A time scale has purposely not been included, because this can vary enormously between aircraft acquisitions.

Superseded

Figure 7: Common project timeline for DASA authorisations

6.1.2.52 The elements below the dashed line can broadly be grouped into five activities, as shown in Figure 8. With the exception of Activity 1, the remaining activities are rarely sequential; more often than not Activities 2 and 3 are executed concurrently, and several activities may be cyclic.

Superseded

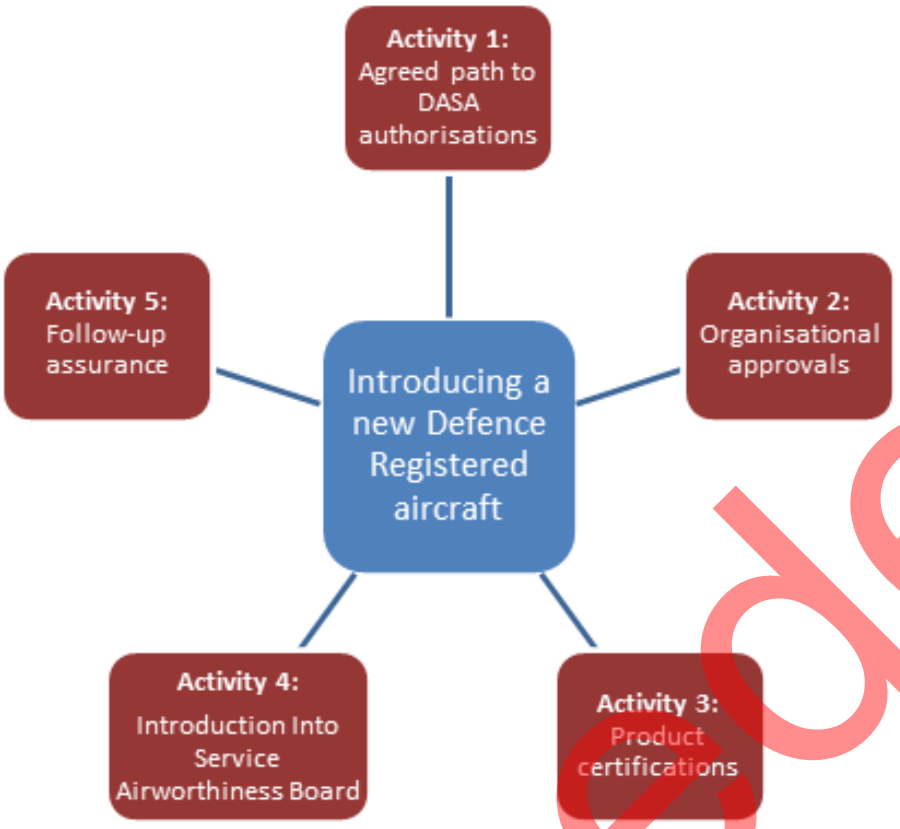


Figure 8: Activities in introducing a new Defence aircraft

6.1.2.53 Each of these five activities from Figure 8 is explored below.

Activity 1: Agreed path to authorisations

6.1.2.54 A major milestone in the aircraft acquisition process is the achievement of a range of DASA authorisations. However, establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with DASA is therefore in the best interests of all parties.

6.1.2.55 **Initial engagement.** Engagement should ideally commence as soon as Defence's acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[14]. Engagement should be well-advanced before Defence issues any tender documents (eg Requests for Tender, Foreign Military Sales Letter of Requests, etc) that may later affect an authorisation.

6.1.2.56 The initial engagement should involve DASA specialists, the Defence acquisition organisation, and capability manager representatives. If known, the Defence and industry organisations that will support the aircraft could also participate. Key outcomes will be:

1. a shared understanding of the project scope and schedule, candidate aircraft and the likely scope of Defence-unique design changes

Superseded

2. initial views on which of the seven DASA organisational approvals are likely to be needed and, for those that may not be needed, agree on the alternative means of achieving the same safety outcomes

3. initial views on how the aircraft might achieve an MTC, including how current or future certifications by DASA-recognised national or military airworthiness authorities (NAA/ MAAs) might contribute

4. initial views on whether an MPTF might be required to allow for test and other flying prior to the issue of an MTC

5. DASA should provide a management overview of each likely DASA authorisation, including: key milestones, common approval timeframes, recommended DASA collaboration, availability of training and other guidance material, and so on.

6.1.2.57 Annex A presents an expanded version of the above list, which can be used as a set of talking points for this initial engagement. Depending on the acquisition strategy, some of the details may initially be sparse. If so, further engagement should be scheduled for when the information is likely to become available, but still before releasing RFTs or equivalent documents.

6.1.2.58 **Documented agreement.** As noted in Chapter 6.1.1, DASRs do not mandate a plan or agreement for achieving DASA authorisations. It is, however, a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage aviation safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.2.59 DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between Applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies.

6.1.2.60 Annex B presents the suggested content and management arrangements for an ASAMP. Summarised, it suggests the main body of the ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistical and safety management activities. It should also describe the management of flight operations during acquisition, particularly if operations are to commence under an MPTF.

6.1.2.61 Annex B also suggests the ASAMP should include a series of annexes, with individual annexes dedicated to each DASA authorisation. Each annex could be sponsored by the relevant Applicant for the DASA authorisation, and could form an agreement between DASA and the Applicant on the path to the particular authorisation. For simple acquisitions, the annexes might directly present the information[15]. For more complex acquisitions, particularly where there are a range of Applicants for the various DASA authorisations, the annexes might merely contain a link to a planning document that is drafted and managed by the respective Applicant. Either way, the annexes should be 'modular', whereby each annex is configuration managed and approved separately to the main body of the ASAMP.

Superseded

6.1.2.62 The ASAMP should be drafted after the acquisition strategy solidifies (usually post Government approval), but before RFTs (or equivalent) are released. The ideal time to draft the ASAMP is usually soon after the initial engagement with DASA, and in fact that engagement will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since the path to most DASA authorisations should be clear.

6.1.2.63 Once contracts and agreements are signed, the main body of the ASAMP need only be updated when there is a marked change in the acquisition strategy or high-level schedule for the project. The annexes, on the other hand, will probably be updated more frequently, particularly in the earlier stages of the project as knowledge and plans evolve.

6.1.2.64 **Ongoing engagement.** DASA's experience is that three forms of engagement should be maintained throughout the project lifecycle, as follows:

1. Periodic major stakeholder engagements, expanding on the initial engagement suggested previously in this section. This should occur throughout the acquisition project lifecycle, usually when significant milestones are approaching

2. Frequent coordination and status updates between senior project management staff (commonly the CASG Project Engineering Manager, the CM Transition Team lead, etc), and DASA's operational and technical leads for the acquisition

3. Engagement as required between each of the Applicants for a DASA authorisation and the respective DASA specialist.

6.1.2.65 **DASA assistance with contract reviews.** There is no DASR requirement for DASA to be engaged in seeking offers (eg RFT or equivalent), selecting the successful tenderer, negotiating the contract, and signing the contract. However, where a contract element may one day affect a DASA authorisation, prudent DASA involvement can reduce project cost and schedule risk. Areas where DASA can contribute include:

1. Prior to RFT (or equivalent) issue:

    i. confirming the RFT requirements for organisational approvals are appropriate for aircraft acquisition and/or in-service support

    ii. confirming the RFT airworthiness design requirements (including airworthiness codes and other standards), and proposed approach to aircraft certification, present a suitable pathway to MTC

    iii. confirming the RFT aircraft production arrangements present a suitable pathway to issue of MCoA

    iv. confirming aircraft registration pathways, particularly for significant modifications to a green aircraft by a third party

Superseded

v. providing expert input to specialist aircraft design technology requirements, such as aircraft structural integrity (ASI) design and in-service management systems.

2. For RFT assessment:

i. If any of the above RFT items seek preliminary plans for DASA organisational approvals or product certifications, then DASA can participate in the assessment of those plans

ii. otherwise, while the Defence acquisition organisation will conduct the tender evaluation, DASA staff are available for on-call advice and assistance as required[16]

3. For contract negotiation: DASA staff would rarely be directly involved in contract negotiations, but are available for on-call advice and assistance as required.

4. Final contract review: DASA does not review the mature contract prior to signature, but is available for advice and assistance as required.

6.1.2.66 **Delegations.** During the project lifecycle, organisations may elect to delegate their Command responsibilities, for example the appointment of the senior operator within the project transition team to make operational decisions in relation to the project. Once notified of the delegation, DASA will treat the decisions and approvals of the delegate as if the accountable manager had issued them.

6.1.2.67 Later in the project lifecycle, usually just before MTC issue, a 'Platform DoSA' will need to be appointed by DASA. The Platform DoSA role is normally delegated to the incumbent Defence CENGR of the platform MTCH organisation, and is responsible for assurance of MTCH actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. DASP Manual Volume 3 Chapter 4.3, Delegates of the Safety Authority, provides additional information.

Activity 2: Organisational approvals

6.1.2.68 Professional aircraft design, construction, maintenance and operation organisations are cornerstone to aviation safety. Implementing the required organisations for a new aircraft, and obtaining DASA approval of each organisation, is usually a significant activity for both the Applicants and DASA. This section explores the planning, establishment and assessment of new DASA-approved organisations.

6.1.2.69 **Planning.** As noted in Activity 1, the ASAMP should include a planning annex for each organisational approval. The ASAMP should plan for the organisational approvals to be achieved well prior to their need date, which are likely to be as follows:

Superseded

1. MAO: DASA authorisation is required prior to the first operation of the aircraft by the MAO[17]. This authorisation is reflected in DASA's issue of an OpSpec annex for the new aircraft

2. MDO:

   i. (for initial aircraft design): Required prior to design changes to the green aircraft, if those changes are not to be certified by a recognised NAA/MAA

   ii. (for in-service support): Required prior to first flight on the Defence Register, unless DASA has agreed to an alternative interim support arrangement

3. MTCH: Implementation of suitable MTCH arrangements are a prerequisite for issue of an MTC. However, depending on the acquisition arrangement, some of these functions may need to be in place earlier to support the initial MPTF

4. MPO: Required prior to any aircraft production activity, unless an alternative production approval path has been agreed by DASA

5. CAMO: Required prior to first flight of the aircraft on the Defence Register

6. AMO: Required prior to first flight of the aircraft on the Defence Register[19], unless an alternative interim maintenance arrangement has been agreed by DASA. AMOs will need MAMLs in sufficient numbers to meet AMO needs, relevant to the scope of operations and numbers of aircraft

7. MTO: Agreed in consultation with DASA.

6.1.2.70 Note that while DASA agreement to the above authorisation plans is not a regulatory requirement, it is encouraged by DASA. As Figure 9 shows, the time needed to implement a new organisation and then achieve a DASA organisational approval can be substantial, so careful management is needed to minimise Defence's schedule risk.

Superseded

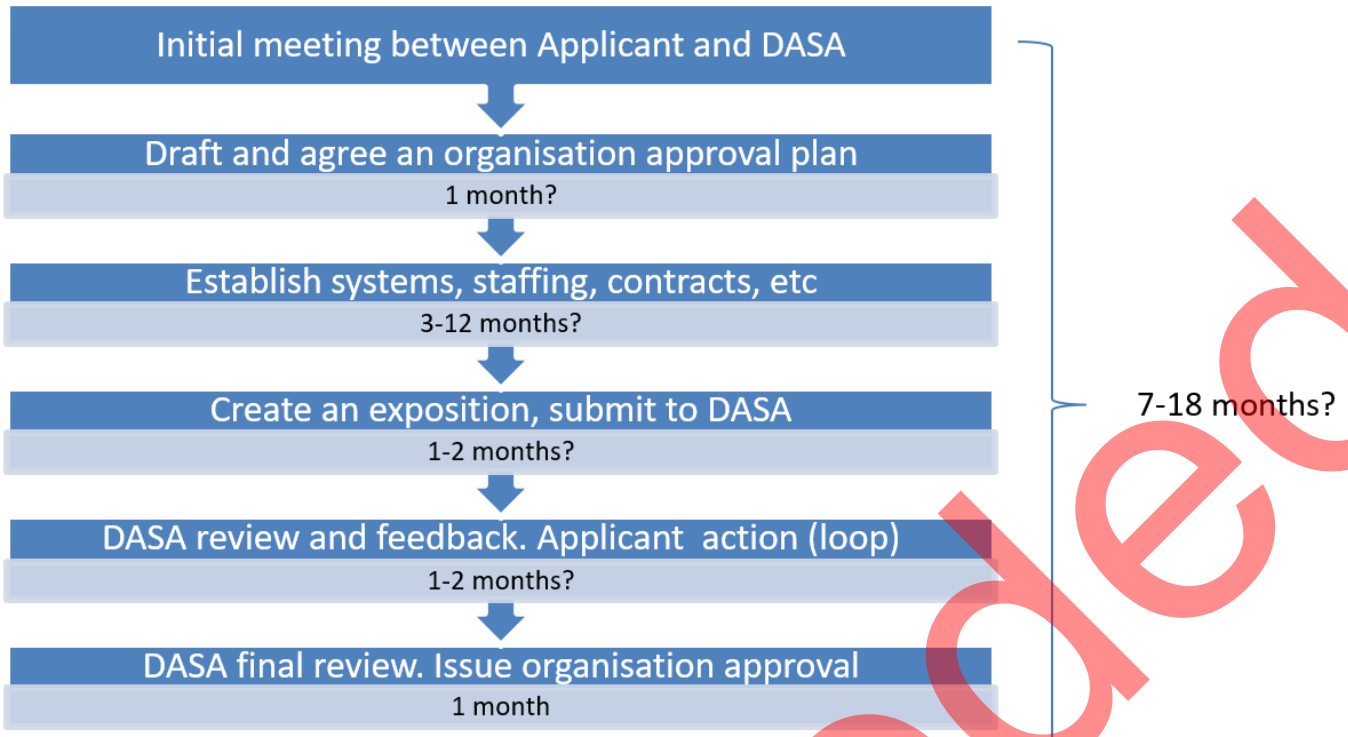


Figure 9: Timeline for DASA organisational approvals

6.1.2.71 **Establishing organisations.** DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, presents a description of each DASA organisational approval, including the key artefact(s) needed to show regulatory compliance - for example, the MDO's design organisation handbook, the AMO's Maintenance Organisation Exposition (MOE), the MAO's Operations Compliance Statement (OCS), and so on. Each of these artefacts will help guide the Applicant's efforts to establish an organisation that professionally supports Defence aviation safety, as will the Acceptable Means of Compliance (AMC) and Guidance Material (GM) accompanying the relevant DASRs. DASA-sponsored education courses and DASA website material also offer useful information.

6.1.2.72 However, Applicants must bear in mind that such guidance may be incomplete, or not entirely relevant to the local context. Consequently, DASA cannot overstate the importance of the Applicant's role in refining the organisation beyond DASR (and DASA) requirements. This might include, for example:

1. learning from other Defence organisations
2. learning from comparable civil organisations[20]
3. exploring the (often extensive) guidance material released by other NAA/MAAs[21]
4. consulting with staff and others with relevant domain expertise.

6.1.2.73 A robust and evolving Aviation Safety Management System (ASMS) is pivotal to establishing an organisation that optimises its contribution to Defence aviation safety. An ASMS utilises a systematic

Superseded

approach to managing aviation safety, including organisational structures, accountabilities, policies and procedures. An effective ASMS continuously improves an organisation's safety performance through pro-actively collecting and analysing safety data to predict, prevent and treat aviation hazards and risks. DASP Manual Volume 3 Chapter 6.2, Safety Management, provides further guidance.

6.1.2.74 **DASA assessment.** The annexes in Chapter 5.3 provide insight into DASA's approach to assessing, and ultimately approving, a new or expanded organisational approval. Most approvals follow a similar process, namely:

1. the Applicant drafts an 'Exposition' or similar document, as key evidence that their organisation has implemented the systems and processes needed to comply with the relevant DASRs

2. the applicant submits the relevant DASR Form to seek an organisational approval

3. DASA conducts an assessment of the Exposition and the documents it references, often as a desktop activity for new organisations; on occasion DASA may do an on-site assessment

4. if needed, the applicant remedies any deficiencies that preclude DASA's approval of the organisation

5. DASA issues an organisational approval, perhaps initially limited in scope

6. once the aircraft is operating and the organisation has the opportunity to exercise its approval, DASA will conduct a deeper assessment, usually including an on-site visit, placing particular emphasis on the effectiveness of the ASMS and system monitoring.

6.1.2.75 Figure 10 summarises the path through to DASA approval for the seven organisations common to new aircraft acquisitions.

Superseded

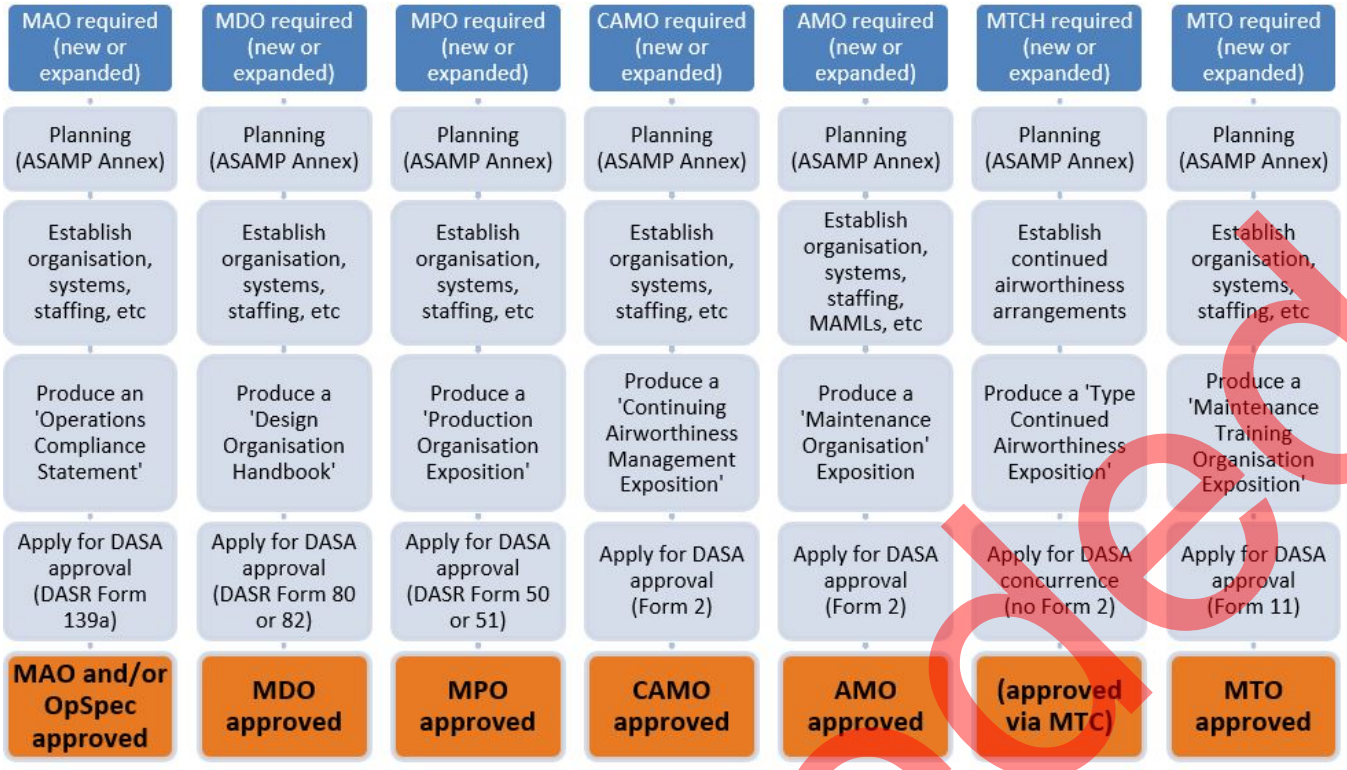


Figure 10: Path to DASA organisational approvals

Activity 3: Product authorisations

6.1.2.76 The four common product authorisations for new aircraft are the MTC, MCoA, MPTF and AMP. While an MPTF will often be issued prior to an MTC and MCoA, preparatory work on the other two will usually precede and support the issue of the MPTF. Hence, this section will consider the MPTF last.

6.1.2.77 Before exploring the four product authorisations, some brief discussion on safety risk management is warranted. Risk management is almost always a contributor to MTC and MPTF authorisations, so all stakeholders need to be conversant with Defence's 7-step risk management approach, as explained in the DASA Advisory Circular 003/2018, Risk Management in the DASP. Furthermore, DASA's experience is that this risk management is most effective when all parties robustly consult, cooperate and coordinate with each other. Critically, this must occur across organisational boundaries, and across specialisations (most notably between operators and engineers).

6.1.2.78 **MTC.** Achieving an MTC for a new aircraft is a significant milestone for an aircraft acquisition project, and one that commonly takes substantial planning and effort. While the path to an MTC is explored in DASP Manual Volume 3 Chapter 7.2, Certification, for the benefit of readers not needing that depth of information, a brief description of the process is included here.

Superseded

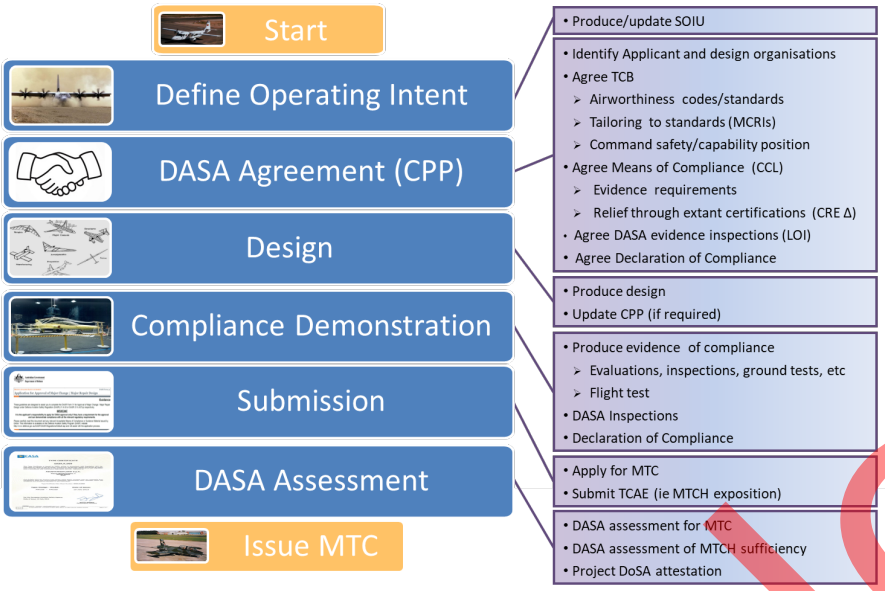


Figure 11: Path to issue of an MTC

6.1.2.79 An overview of the type certification process, culminating in an MTC, is shown in Figure 11. The first step, defining the operating intent for the aircraft, is pivotal to designers producing a design that is safe for Defence's intended Configuration, Role and Environment (CRE). A poorly-developed operating intent, or one developed late in the design lifecycle, can (and previously has) resulted in:

1. additional cost to re-design elements of the aircraft
2. operational limitations to eliminate the elevated risk, or
3. management and retention of elevated risk, often for the life of the aircraft.

6.1.2.80 The second step shows the Applicant and DASA agreeing on a Certification Program Plan (CPP). While a CPP is not explicitly required by DASR, it is inconceivable that Defence would pursue a certification program without an agreed CPP, since it imposes obligations on both the Applicant and DASA. Critically, the CPP:

1. agrees on the Type Certification Basis (TCB) for the new aircraft, which comprises the airworthiness requirements (inclusive of tailoring) that the design must meet
2. agrees on the evidence that will be produced by the design organisation(s) to demonstrate the design complies with the TCB
3. agrees on the application of 'recognition of prior acceptance', where existing product certifications by DASA-recognised NAA/MAAs will contribute to the certification of Defence's new aircraft [22]
4. defines the extent of DASA's inspections of compliance demonstration evidence.

Superseded

6.1.2.81 The tailoring of the TCB, mentioned in the first sub-paragraph above, is accomplished using one of five types of Military Certification Review Item (MCRI)[23]. Four of these MCRIs either maintain or improve the safety of the aircraft design, while the fifth, the 'Exception MCRI', can approve a reduction in the safety of the aircraft design. This reduction is only justifiable where requiring compliance with a TCB requirement would adversely affect Defence capability. While DASA ultimately approves the Exception MCRI, it is based heavily on Command's confirmation that a capability imperative exists, and that the risks due to the TCB non-compliance have been eliminated or otherwise minimised SFARP. The document used to communicate and record these Command risk decisions is normally the Airworthiness Issue Paper (AwIP). Guidance for AwIPs is provided at annex C.

6.1.2.82 The third step in the certification process is where the design organisation produces the design. For new Defence-unique designs, this often requires a DASA-approved MDO unless the design will be certified by a DASA-recognised NAA/MAA, as explained earlier in this chapter. The MDO must be in place before the design effort commences.

6.1.2.83 The fourth step, Compliance Demonstration, is where the MDO produces evidence that their design meets the DASA-agreed TCB. This step may require DASA approval of an MPTF to enable flight testing if the aircraft is already on the Defence Register. The MPTF is explored later in this section.

6.1.2.84 The fifth and six steps wrap up the certification process, and are largely self-explanatory. It is worth noting that while an Airworthiness Board (AwB) is not a prerequisite for DASA issue of an MTC, if the Defence Aviation Authority (Defence AA) elects to convene an AwB near to the MTC issue date, then DASA may wait until after that event to issue the MTC. AwBs are explored later in this chapter.

6.1.2.85 **MCoA.** As noted previously, an MCoA cannot be issued prior to the MTC. However, it is normal practice for the Defence acquisition organisation to be prepared in advance, so DASA[24] can issue MCoAs for the delivered fleet directly following the issue of the MTC. DASPMAN Volume 3 Chapter 5.3 presents the conditions and processes for MCoA issue.

6.1.2.86 **MPTF.** Once a new aircraft type has been added to the Defence Register, but prior to issue of the MTC, MAOs may need to operate the aircraft. For example, the flight test MAO may need to conduct flight tests to generate compliance demonstration evidence, and to contribute to operational test and evaluation (OT&E). The operational MAO may need to maintain crew currency, evolve OIP, conduct OT&E, and so on.

6.1.2.87 DASA can issue an MPTF if the aircraft design has been shown to substantially comply with its TCB, the configuration of the aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions, and any elevated risk has been justifiably retained. An MPTF is effectively reliant on both the MTC and the MCoA processes being well-advanced.

6.1.2.88 The initial MPTF will usually constrain the MAO's operation of the aircraft. After all, the type certification program is still incomplete so there will be areas of the design that are known to be deficient or where uncertainty still remains, and hence the MPTF will impose commensurate risk controls. DASPMAN Volume 3 Chapter 7.5, Flight Conditions and MPTFs, explores MPTFs and their associated flight conditions, including risk management, the application process, periods of validity, and so on. The MAO will often self-impose additional constraints on flight operations, and will ease these constraints as the systems and personnel skills mature.

Superseded

6.1.2.89 **AMP.** CASG's Reliability and Aircraft Maintenance Program (RAMP) team, which is collocated with DASA's Melbourne office, provides Defence's centre of expertise for AMPs, and advises DASA on whether an AMP should be approved[25]. Both DASA and the RAMP team should be engaged early in the acquisition phase for guidance on AMP requirements.

Activity 4: Convene an Airworthiness Board

6.1.2.90 As discussed in Chapter 6.1.1, the Defence AA would normally require that an AwB be convened prior to operation of a new aircraft on the Defence Register[26]. The Introduction into Service AwB, normally held immediately prior to the commencement of flight operations, complement regulatory activities conducted by the DASA and build on the confidence of DASA authorisations. This AwB is underpinned by progressive check-ins by the board members with both DASA and the regulated community, focussing on:

1. understanding the status of DASA assurance of relevant products and organisations
2. safety assurance of the collective enterprise (CM, CASG, Industry) introducing the new platform;
3. potential organisational culture hazards; and
4. transition safety risks associated with the introduction of the capability through to reaching initial operational capability milestones.

6.1.2.91 The artefacts submitted by Applicants to the AwB would predominantly consist of already produced project documentation and attestations that collectively summarise the readiness to commence Flight Operations:

1. Airworthiness Plans, Artefacts, Approvals and Authorisations
2. FIC Status and Capability Realisation
3. Integrated Airworthiness System Assessment
4. MAO Risk Management and OIP

6.1.2.92 The Defence AA would normally require progressive AwBs during the initial operating period for a new aircraft, most likely aligned with key Operational Capability milestones. Hence the AwB can explore whether the operational and support systems are maturing commensurately. Periodicity might be influenced by the severity of organisational and/or product deficiencies noted during DASA assurance activities and/or a previous AwB.

6.1.2.93 Annex D presents additional guidance on the submissions, requirements and conduct of an AwB for a new aircraft type.

Superseded

Activity 5: Follow-up DASA assessments

6.1.2.94 The organisational and product authorisation requirements presented in this chapter are seldom wholly implemented when the Applicants apply for the relevant DASA authorisations. Provided DASA is satisfied the safety risks due to the deficiencies can be robustly managed, this may not preclude DASA from issuing the authorisation, as explored in the following paragraphs.

6.1.2.95 **Organisational approvals.** When DASA initially issues an organisational approval, the processes and people may not yet have been exercised for the new aircraft type. For example, an MDO may not have produced designs, the MAO may not have exercised its ASMS, organisational deficiencies may have been identified by DASA, and so on. Equally, the organisation may self-identify temporary deficiencies in their own processes and people.

6.1.2.96 These issues may not preclude DASA from issuing the organisational approval if satisfied the organisation has the ability to safely operate and support the aircraft. DASA may elect to moderate this risk through, amongst other things:

1. placing limitations on operations, initially via the initial MPTF and later via the OpSpec
2. initially constraining the 'privileges' that are available to organisations under some regulations
3. re-visiting the organisation soon after their systems and processes have been exercised.

6.1.2.97 Over time, once DASA is assured the deficiencies or lack of experience have been addressed, the constraints may be eased. The Defence AA may convene AwBs to provide additional confidence.

6.1.2.98 **Product authorisations.** As a matter of pragmatism, a MTC can be issued before compliance with the TCB has been entirely demonstrated. As a result, the MTC may include temporary limitations, or the TCB may include temporary Exception MCRIs (with supporting AwIPs documenting essential risk management), pending resolution of the outstanding design issues. Once evidence of TCB compliance is provided to DASA's satisfaction, the limitations or other risk management measures can be progressively removed.

Project completion

6.1.2.99 Even after the above five activities have been substantially completed, residual issues may still be outstanding. Provided these issues are sufficiently few in number and complexity[27], they have been professionally transitioned to the running system, and any associated risks are being managed in the relevant ASMS, DASA will in due course consider the acquisition project to be closed.

6.1.2.100 The residual issues will be monitored by DASA through normal compliance assurance activities.

Niche Applications

Superseded

6.1.2.101 So far, this chapter has focused on new aircraft types being acquired by Defence. This final section will explore three niche applications of the information presented in this chapter, namely fleet additions, acquisition of used aircraft, and Major design changes to in-service aircraft.

Fleet addition aircraft

6.1.2.102 When additional aircraft are to be added to an extant Defence fleet, the guidance presented earlier in this chapter is still mostly relevant, although it can be applied in a substantially abbreviated form. An assessment of each of the five activities from the previous section is presented below.

6.1.2.103 **Activity 1: Agreement on DASA authorisations.** The information presented in the previous section is entirely relevant. That is, the acquisition organisation should engage with DASA before contracts and other agreements are signed, and an agreed path to DASA approvals should be documented in an ASAMP. The ASAMP will be much abbreviated compared to the acquisition of a new aircraft type, and some of the ASAMP annexes will not be required.

6.1.2.104 **Activity 2: Organisational approvals.** Each of the organisational approvals will likely be in place, so this activity is limited to ensuring those organisations can manage the additional workload and (where applicable) the configuration differences of the new aircraft.

6.1.2.105 **Activity 3: Product certifications.** If the new aircraft are precisely the same configuration as the extant fleet, they can simply be listed on the MTC and individual MCoAs then issued for each new aircraft. More likely, however, there will be configuration differences. While other avenues may be acceptable, most often the new aircraft are added to the MTC mirroring the configuration of the extant fleet, and the configuration deltas for the new aircraft are processed as design changes (Major and Minor) to the common type design. If there will be a delay in completing this activity, an MPTF can be used to cover the configuration differences of the additional aircraft.

6.1.2.106 If there are substantial configuration differences to the extant fleet, perhaps even with changes to the TCB, the new aircraft might need to undergo a targeted type certification program that focuses on the configuration deltas. DASA's approval may be reflected as a separate model number on the MTC, or the deltas might be encompassed in a Military Supplemental Type Certificate (MSTC).

6.1.2.107 **Activity 4:** AwB. AwB independent review of additional aircraft would normally be considered as part of the next scheduled sustainment AwB. In exceptional circumstances, a separate AwB may be convened if the acquisition of additional aircraft requires appreciable changes to extant FIC arrangements.

6.1.2.108 **Activity 5:** Follow-up DASA assessments. The information on product deficiencies presented in the previous section is equally relevant to fleet addition aircraft. The information on organisational deficiencies, on the other hand, is unlikely to be applicable; rather, the next routine compliance assurance activity would check how the organisation is coping with the extra workload.

Used aircraft

Superseded

6.1.2.109 Where Defence elects to acquire used aircraft, the guidance presented earlier in this chapter is entirely relevant. However, there are additional actions that will need to be undertaken for Activity 3: Product Certification, namely the provision of additional documentation and the completion of additional inspections to support the issue of an MCoA.

6.1.2.110 **Documentation.** DASR 21.A.174 presents a list of the additional documentation needed for a used aircraft, namely:

1. (if the aircraft originates from a foreign military applying an EMAR based regulations): a Military Airworthiness Review Certificate;

2. (if the aircraft originates from a civil state of registry that is recognised by DASA): an export certificate of airworthiness from the recognised CAA;

3. (if the aircraft originates from elsewhere):

    i. a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer

    ii. a weight and balance report with a loading schedule

    iii. the flight manual and any other manuals required by the Authority of the State of registry

    iv. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness

    v. a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

6.1.2.111 **Inspections.** Used aircraft require a more stringent inspection than new build aircraft, and must be performed by an appropriately qualified, independent and experienced organisation. The inspecting organisation is to conduct a comprehensive review of the aircraft design, maintenance and operational documentation, verified by a physical inspection of the airframe structure, engines and other systems.

6.1.2.112 The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:

1. details of the aircraft inspected, including registration number, manufacturer, serial number, model designation, and Certificate of Airworthiness number

2. last known inspected configuration of the aircraft

Superseded

3. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and lifed component status

4. details of any major structural and life-limited component changes made to items such as wings and tailplane, and a summary of the individual histories of such components, unless new when fitted

5. details of any accidents or incidents in which the aircraft has been involved

6. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated

7. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies

8. a condition assessment of flight safety critical components and fatigue-sensitive structure

9. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection

10. flight manuals and any other manuals.

6.1.2.113 Should Defence be contemplating the acquisition of used aircraft, DASA should be contacted early in the decision process. DAVENG staff in particular will provide the acquisition project with useful guidance.

Major design changes

6.1.2.114 This chapter has so far focused on aircraft acquisitions. However, the content can be extensively applied to particularly complex Major design changes to in-service aircraft. A Major design change is one that has an appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product .

6.1.2.115 Defence currently conducts around 70 Major design changes to its fleet each year. Most of these design changes have little if any significant impact on the aircraft operator or support organisations. Occasionally, however, Defence undertakes a Major design change whose effects pervade the DASP.

6.1.2.116 An example might be an extensive mid-life cockpit upgrade, which will not only challenge the design organisation, it can extensively affect MAO OIP, require simulator upgrades, change the aircrew training curriculum, allow new Performance Based Navigation approvals, require additional maintenance equipment and training, require new production organisations, require parallel operations of two different aircraft configurations for extended periods, and so on. An extensive flight test program to explore human factors and other certification issues might also be required.

Superseded

6.1.2.117 Making such pervasive changes to the aircraft and supporting systems can be a complex undertaking that requires coordination and often robust risk management across multiple organisational boundaries. While it perhaps does not have the complexities of introducing a new aircraft into service, it is far from straightforward and can introduce elevated safety risks if not executed well. In such circumstances, increased independent assurance from DASA is likely to benefit aviation safety.

6.1.2.118 Where DASA, in consultation with the MAO and CASG, identifies a Major design change that warrants this expanded DASA independent assurance, DASA will treat the project similarly to an aircraft acquisition. This may include, for example, increased scrutiny of organisational approvals, a closer assessment of how the new configuration is introduced into service (including, if necessary, imposing temporary operating constraints), greater assurance of risk management decisions, and so on. The Defence AA may require an AwB to be convened to provide an independent review of how well the new configuration has been integrated into Defence.

6.1.2.119 For these Major design changes, the guidance in the previous section is applicable almost in its entirety. Notably, an ASAMP should be raised, albeit some elements will self-evidently either be of limited scope or not applicable. An SOIU update may be required, organisational approvals may need to be expanded, and so on. The only element that is unchanged is the type certification process, since DASA certification oversight is always implemented commensurate with risk, and this is unaffected by the additional DASA scrutiny outlined in this section.

Annexes:

1. Project Initiation Meeting
2. ASAMP Guidance
3. Airworthiness Issue Papers
4. Airworthiness Board Guidance

6.1.3 Acquisition of Non-Defence-Registered Aircraft

Introduction

6.1.3.1 Civil registration of a Defence aircraft may be attractive to Capability Managers (CMs) and acquisition organisations. It may provide contractual and ongoing management simplicity, and sometimes lower costs and result in a faster introduction into service.

6.1.3.2 Regardless of the registration arrangement, Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people, and facilities on the ground. However, in the case of non-Defence-Registered (NDR) aircraft, DASA has a comparatively lesser role in guiding and assisting Command in meeting these obligations.

Purpose

Superseded

6.1.3.3 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators through the aviation safety requirements and recommended practices during the acquisition of an NDR aircraft, but only to the extent, that DASA is involved in the process.

CONTENT UNDER REVIEW

Circa 2023, DASA is currently conducting a major review of the DASA approach and regulations for non-Defence Registered (NDR) aircraft. The review will assess, amongst other things, the legal implications of a State aircraft being regulated by a civil regulator, the need (if any) for DASR regulations to supplement the civil regulations, the role of DASA (if any) in aviation safety assurance, and so on.

Once the review is completed, DASR.NDR and this DASPMAN chapter will be updated. In the meantime, Defence organisations considering the acquisition of a NDR aircraft should contact DASA for advice.

Superseded

6.1.1. Introduction

6.1 Introduction of New Defence Aircraft Capabilities

6.1.1 Introduction

Background

6.1.1.1 Defence periodically adds aircraft to its inventory to meet a capability need. The aircraft may be purchased or leased, crewed or uncrewed, Defence or civil registered. An essential prerequisite for Defence operation of a new aircraft, regardless of the acquisition arrangement, is for Defence to confirm that it is safe for flight. This encompasses the safety of aircraft occupants, other airspace users, and overflown people and facilities.

6.1.1.2 The acquisition process for a new aircraft begins during the capability development phase of the life cycle, where operational requirements are defined and potential solutions investigated. The Aviation Safety management process commences concurrently with the acquisition process, and remains inextricably linked. Decisions made early in the acquisition process can have an enduring effect on Aviation Safety.

6.1.1.3 For a Defence aircraft to be safe for flight, the aircraft to be appropriately designed, constructed, maintained and operated, as explained in DASP Manual Volume 3 Chapter 3, The Defence Aviation Safety Program. It is the responsibility of aircraft acquisition organisations in Defence, relevant in-service organisations and Defence industry partners, to ensure a Defence aircraft is safe for flight, both from the initial design and throughout its Defence lifecycle. In turn, the relevant Aviation Safety authorities need to gain assurance that the aircraft is safe for flight. If suitably assured, the Aviation Safety authorities can issue a range of 'authorisations', usually in the form of certificates, permits, approvals or licenses.

Purpose

6.1.1.4 This series of chapters aims to guide Defence aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the aircraft acquisition process.

6.1.1.5 This first chapter provides a general introduction to acquiring new Defence aircraft, including registration requirements, Aviation Safety responsibilities, engagement with Aviation Safety authorities and other common concepts.

Applicability

6.1.1.6 This chapter is applicable to the acquisition (whether through purchase, lease or other arrangement) of the following Defence aircraft:

1. Defence registered crewed aircraft
2. Non-Defence registered crewed aircraft (short term)
3. Defence registered certified uncrewed aircraft systems (UAS)

Superseded

6.1.1.7 While the concepts in this chapter are also broadly applicable to Open and Specific category (ie non-certified) UAS, the regulatory approaches for these UAS are substantially different to certified aircraft, so DASP Manual Volume 3 Chapter 10, Uncrewed Aircraft Systems, separately covers their acquisition.

Structure

6.1.1.8 This chapter will provide context for the next four chapters, which will individually cover the three different arrangements for Defence aircraft acquisitions listed in paragraph 6, and as shown in Figure 1.

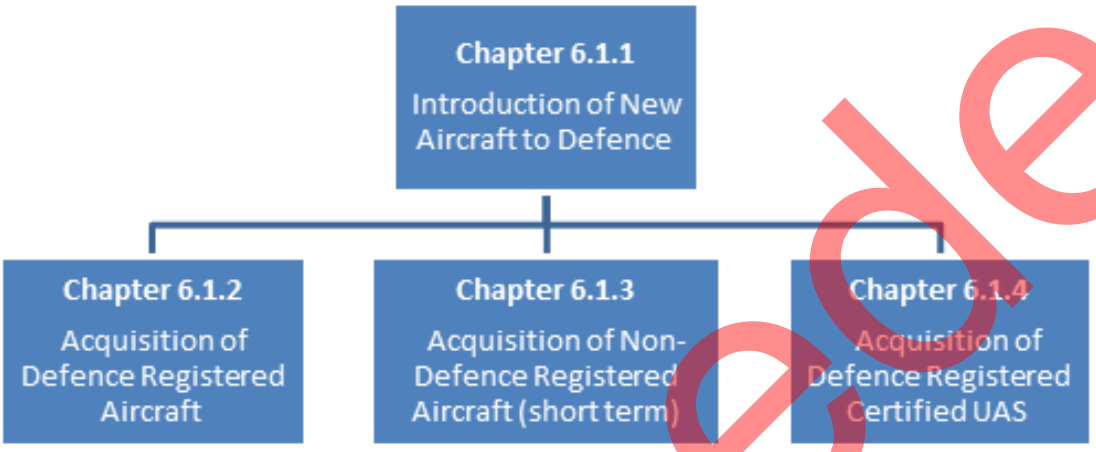


Figure 1: Chapter 6.1 structure

6.1.1.9 This chapter will also provide content that is common to the next four chapters, to avoid duplication.

Aircraft Registration

6.1.1.10 All Defence aircraft, apart from some non-certified UAS, must be included on the Register of a military or civil aviation authority. DASR separates these registrations into two categories; Defence registered aircraft and non-Defence registered aircraft. The latter are almost universally regulated by CASA. While other registrations are occasionally employed, they are always transitory arrangements[1].

6.1.1.11 A Defence registered aircraft is subject to Defence Aviation Safety Regulations (DASR) and DASA safety assurance oversight. An Australian civil registered aircraft, on the other hand, is subject to Civil Aviation Safety Regulations (CASR) and CASA safety assurance oversight as well as some limited DASA oversight.

6.1.1.12 When Defence is procuring an aircraft type that is also used under the civil regulatory framework, an important decision by the Capability Manager, required early in the acquisition process, is to determine whether the Defence aircraft will be Defence registered or civil[2] registered. This registration can have an enduring effect on Defence aviation capability, as summarised below:

1. **Defence registration.** Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR, which make specific allowance for:

   i. uniquely military roles, including weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting

Superseded

hazardous materials and dangerous goods etc — types of operations that may be heavily restricted or unsupportable under civil regulatory requirements

ii. flexibility in the approach to achieving compliance with the DASR

iii. the application of risk management where DASR compliance cannot be shown, provided a credible and defensible level of aviation safety performance is achieved

iv. Commanders to deviate from requirements (2) and (3) above in the event of compelling operational imperatives or emergencies.

DASA is experienced in regulating for the unique military operational context. Consequently, DASA is well-placed to advise Commanders on military aviation safety issues and to provide tailored independent safety assurance of military organisations and products.

2. **Civil registration.** Civil registration can initially be attractive to Capability Managers and acquisition organisations due to the simplicity of contractual and ongoing management, and potential faster introduction of the aircraft into service. However civil registration should only be considered for short term arrangements, or where an aircraft will not be considered a continuous 'State' aircraft. Complicating factors include that:

i. it can bind Defence to civil aviation safety regulations for design, maintenance and operation, and these regulations have not been customised to the unique military aviation context

ii. there may be a lack of risk-managed operational flexibility, which is the hallmark of Defence's aviation safety regulations

iii. it can bind Defence to the potential inflexibilities of the civil regulator

iv. there may be adverse diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas.

6.1.1.13 Where a Capability Manager is considering civil registration for a temporary Defence aircraft, DASA should be engaged at the earliest practicable opportunity for consultation. Annex A presents a list of issues that should be explored during this engagement, to assist the Capability Manager in making an informed decision on Defence registration versus civil registration.

6.1.1.14 Annex B presents guidance on the structure and administration of the Defence Register.

Aviation Safety Responsibilities

6.1.1.15 DASP Manual Volume 1 states that aviation safety is a command responsibility, so commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.1.16 The responsibility for ensuring (ie making sure) a new Defence aircraft is safe for flight falls directly on the Defence acquisition organisations and the relevant in-service support organisations. This includes, amongst other things, ensuring:

1. the aircraft design is safe for flight in the intended role and operating environment (ie aircraft design and certification)

Superseded

2. the physical aircraft standard of construction meets that design (ie aircraft production)

3. arrangements are in place to ensure the design remains safe (ie continued airworthiness)

4. arrangements are in place to ensure the aircraft remains in a condition for safe operation (ie continuing airworthiness)

5. arrangements are in place to design future changes and repairs (ie aircraft design)

6. operators are able to safely operate the aircraft (ie flight operations).

6.1.1.17 The role of DASA, on the other hand, is to gain assurance that the above elements have been executed effectively.

Aviation safety authorisations

6.1.1.18 When assured of safety, the relevant military or civil aviation safety authority (whether DASA or CASA) may issue a range of authorisations, often in the form of certificates, permits, approvals or licenses. For Defence registered aircraft, the list of authorisations is expansive, potentially comprising up to 12 different types of organisational, product and personnel authorisations. For civil registered aircraft, CASA will issue the civil equivalents to some or many of these 12 authorisations. Chapters 6.1.2 to 6.1.5 explore the Aviation Safety authorisations that may be issued by DASA and CASA for each acquisition category.

6.1.1.19 While DASA does not issue authorisations for civil registered aircraft, DASA may require that the aircraft are included within the scope of the Military Air Operator (MAO), issue a relevant Operations Specification (OpSpec) and conduct limited safety assurance oversight.

6.1.1.20 **Planning and coordination.** Aviation Safety authorisations issued by DASA or CASA are a major milestone in the aircraft acquisition process. Establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with the appropriate Aviation Safety authority (DASA for Defence registered aircraft, and both CASA and DASA for civil registered aircraft) is therefore in the best interests of all parties.

6.1.1.21 Engagement should ideally commence as soon as the Defence acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[3]. Engagement should be well advanced before Defence publishes any tender documents (eg Requests for Tender, Foreign Military Sales requests, etc) that may later affect an authorisation.

6.1.1.22. For civil registered aircraft, CASA will provide guidance on how to achieve the civil authorisations that will be required. DASA will do likewise for the new OpSpec, if one is to be published. This development of this DASA authorisation is far from a trivial endeavour. Not only does it cover the flying management of the MAO and other operational systems for the new aircraft, it also assesses whether the entire aviation safety construct (inclusive of all CASA authorisations) is likely to support safe Defence aviation.

6.1.1.23 For Defence registered aircraft, DASA will provide guidance on how to achieve the required DASA authorisations. Some additional guidance is available through DASA-sponsored courses and website resources.

Superseded

6.1.1.24 Chapters 6.1.2 to 6.1.4 provide tailored guidance on how engage with the relevant Aviation Safety authorities, since this varies widely between civil and Defence registered aircraft, and crewed and uncrewed aircraft.

6.1.1.25 **Documented agreements.** DASRs do not mandate any formal plans or agreements for achieving DASA authorisations. However, it is a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage Aviation Safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.1.26 For both Defence and civil registered aircraft, DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies. It describes, amongst other things, the overarching acquisition strategy in the context of Aviation Safety and brings together the planned outcomes of the operational, technical, logistical and safety management activities.

6.1.1.27 The ASAMP should be drafted after the acquisition strategy solidifies, nominally following government acquisition approval, but before RFTs (or equivalent) are released. While ASAMPs have previously been drafted before initial contact with DASA has been made, this is rarely an efficient approach. The ideal time to draft the ASAMP is soon after the initial meeting with DASA, given that meeting will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since this is the stage where the scope of most authorisations should be clear.

6.1.1.28 Chapters 6.1.2 to 6.1.5 provide guidance on the production of ASAMPs, tailored to the particular acquisition arrangement. ASAMP content varies widely between civil and Defence registered aircraft, with the latter including plans for achieving up to 12 different DASA authorisations. While the differences between crewed and uncrewed aircraft ASAMPs are less significant, the latter will focus on the unique challenges of separating the crew from the aircraft and the additional transitional authorisations that may be available for certified UAS.

Common Concepts

6.1.1.29 The next four chapters are dedicated to the four acquisition arrangements listed at Paragraph 6.1.1.6. To avoid duplication in those chapters, the remainder of this chapter will introduce several concepts that are likely to be common to each acquisition arrangement.

Recognition

6.1.1.30 Aviation Safety authority may acknowledge that products, services and data received from another Aviation Safety authority and the respective system they oversight are compatible within their own Aviation Safety framework. This concept, known as ‘recognition’, is extensively employed for new Defence aircraft acquisitions. Regardless of whether a new aircraft is Defence registered or not, recognition will almost certainly be applied for aircraft design and production. For non-Defence registered aircraft, recognition will also contribute to Defence’s confidence in aircraft maintenance and operation. DASP Manual Volume 3 Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

6.1.1.31 Where recognition is being considered for a certified UAS, DASA advice should be sought. Certified UAS are not yet commonplace, so the competence and capability of international Aviation Safety authorities in regulating and oversighting certified UAS is still evolving.

Superseded

Statement of Operating Intent and Usage (SOIU)

6.1.1.32 DASRs require all Defence registered aircraft and certified UAS (and certain other UAS when directed by the Authority) to have a Statement of Operating Intent (SOIU) that has been approved by the relevant Environmental Commander and DASA. The SOIU describes the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type.

6.1.1.33 Development of an SOIU is not mandatory for a non-Defence registered aircraft, but may assist MAOs with establishing the operational context of their intended operations, to assist with identification of any additional safety controls required to provide an equivalent level of safety to that of Defence registered aircraft.

6.1.1.34 Annex C presents further information and development guidance for SOIUs.

Independent Review of Aviation Safety

6.1.1.35 DASP Manual Volume 3 Chapter 6, Independent Review of Aviation Safety, provides information on the scope and role of Airworthiness Boards (AwBs) within the framework of capability acquisition.

6.1.1.36 Historically, AwBs were identified as a 'gate' for issuance of some DASA authorisations. The contemporary role of the AwB in the acquisition process is to complement the role of the regulator in addressing parts of the 'system of systems' that are not adequately covered through regulatory oversight activity. DASA identifies that this increases flexibility and reduces the impost on the regulated community.

6.1.1.37 Chapters 6.1.2 to 6.1.4 provide guidance on the documentation package provided to Introduction into Service (IIS) AwBs for each acquisition type. The documentation will commonly consist of:

1. the extant submissions for the relevant DASA authorisations
2. an updated ASAMP which reflects the status of the acquisition program, details and plans for outstanding activities, and impact statements and associated risk management for outstanding activities
3. checklists and other artefacts.

6.1.1.38 An AwB is commonly convened prior to the first operation of a Defence registered aircraft, due to the often complex nature of organisational, risk management and other elements. Notwithstanding the aforementioned, there is no regulatory impediment to commencing limited operations, commensurate with risk, prior to the conduct and reporting of an IIS AwB. Progressive AwBs may be convened as the organisations and operational capabilities evolve.

6.1.1.39 An IIS AwB may be less common for non-Defence registered aircraft given that Defence aircraft that are continuous 'State' aircraft should be Defence registered. When determining whether an AwB is required, the Defence AA may take into account the complexity of support arrangements, whether Defence's operations are closely aligned to civil norms, and other similar factors.

Annexes:

(a) Aircraft Registration Discussion Points

(b) Defence Registration

Superseded

(c) Statement of Operating Intent and Usage (SOIU)

6.1.2 Acquisition of (Crewed) Defence Registered Aircraft

Introduction

6.1.2.1 Aviation safety is a command and management responsibility. Commanders and senior managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.2.2 Provided the aircraft and its support and operating arrangements meet the relevant Defence Aviation Safety Regulation (DASR) requirements, DASA may issue a range of 'authorisations', in the form of certificates, permits, approvals or licenses. These authorisations provide confidence to both the Capability Manager and the Australian Government that the aircraft is capable of safe flight.

6.1.2.3 While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that additional guidance is needed if safety risks are to be efficiently and effectively eliminated or otherwise minimised so far as is reasonably practicable.

Purpose

6.1.2.4 This chapter guides Defence's aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the acquisition (whether through purchase, lease or other arrangement) of crewed aircraft that will be Defence registered.

Regulatory outcomes from the acquisition process

6.1.2.5 For a new Defence registered aircraft to operate, Command must ensure it is safe for flight. Command achieves this by ensuring the aircraft are designed, constructed, maintained and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation. In turn, if suitably assured of safety, DASA may issue a range of authorisations. Depending on the acquisition and support arrangements, this can extend to 12 different types of organisational, product and personnel authorisations, as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Military Design Organisation (MDO)
    iii. Military Production Organisation (MPO)
    iv. Approved Maintenance Organisation (AMO)
    v. Continuing Airworthiness Management Organisation (CAMO)
    vi. Maintenance Training Organisation (MTO)
    vii. Military Type Certificate Holder (MTCH) (currently an implicit authorisation)
2. product authorisations:

Superseded

i. Military Type Certificate (MTC) and associated Type Certificate Data Sheet (TCDS)

ii. Military Permit to Fly (MPTF)

iii. Aircraft Management Programme (AMP)

iv. Military Certificate of Airworthiness (CoA)

Note: *In addition, it may include a range of niche authorisations, for example a product conformity agreement, master minimum equipment list, and so on.*

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: *DASA directly authorises certain management personnel within approved organisations. However, those authorisations are considered to be part of the organisational approval process in this chapter, so they are not separately listed here.*

6.1.2.6 Figure 1 summarises the range of DASA authorisations that are usually relevant to a new aircraft acquisition, grouped according to their relevance to aircraft design, construction, maintenance or operation. The subsequent paragraphs separately explore each group.

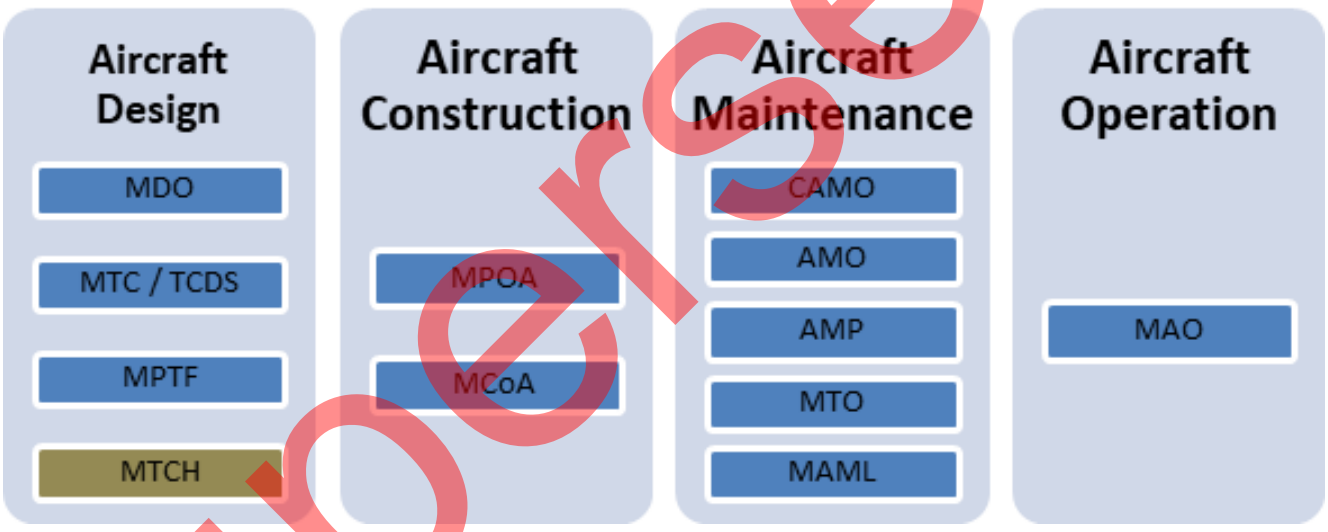


Figure 1: DASA authorisations relevant to Defence aircraft acquisitions[4]

Aircraft design (and certification)

6.1.2.7 New Defence crewed aircraft will normally be civil or military 'off-the-shelf' aircraft that are subsequently modified to meet Defence's capability requirements. Ensuring the final aircraft design is safe for flight in Defence's intended Configuration, Role and Environment (CRE) is a critical step in the acquisition process. Four separate DASA authorisations are relevant to this process, design, construction, maintenance or operation.

6.1.2.8 **Military Design Organisation (for initial aircraft design).** An organisation that has been approved by DASA to provide aircraft design services for a new Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a military or industry organisation, and may be located in Australia or overseas. MDOs are often required for the design of new Defence aircraft,

Superseded

although as explored in the next four paragraphs, this requirement can be reduced, or even eliminated, in some circumstances.

6.1.2.9 **Military Type Certificate.** The Defence type certification process is central to confirming that the aircraft design is safe for Defence's intended Configuration, Role and Configuration (CRE) for the aircraft. At its core is the Type Certification Basis (TCB), which is a DASA-agreed set of airworthiness design requirements, including an airworthiness code and other standards, and tailoring to both as required.

6.1.2.10 At its extreme, type certification requires a DASA-approved MDO to create an aircraft design that complies with the TCB, and to produce evidence that demonstrates this compliance. In turn, DASA examines the evidence on a non-exhaustive basis, and if assured of safety, issues a Military Type Certificate (MTC)[5] and associated TCDS.

6.1.2.11 There is, however, a shortcut to the above approach that is employed for most Defence aircraft acquisitions. When Defence is procuring off-the-shelf aircraft or equipment, the Applicant[6] may seek relief from the need to develop new compliance demonstration evidence, to the extent an extant certification by a recognised National or Military Aviation Authority (NAA/MAA) is relevant to Defence's CRE. This is known as 'recognition of prior certification'. In rare circumstances, DASA can certify an entire new aircraft based solely on the prior certification of another NAA/MAA.

6.1.2.12 More commonly, however, Defence aircraft acquisitions employ a combination of the above two processes. That is, recognition of prior certification is used to cover the design of the off-the-shelf aircraft, and a DASA-approved MDO designs the Defence-unique modifications and produces the requisite compliance demonstration evidence. Sometimes another NAA/MAA may agree to certify some or all of the Defence-unique modifications, which may reduce or even remove the need for a DASA-approved MDO.

6.1.2.13 **Military Type Certificate Holder.** The MTC for a new Defence aircraft is issued by DASA to the Military Type Certificate Holder (MTCH), who takes on responsibility for ensuring the 'continued airworthiness' of the design[7]. This role is normally assigned to the relevant Defence SPO, who will implement standing arrangements with other Defence organisations, industry partners, and perhaps other militaries, to support the function. Amongst other things, the MTCH organisation is responsible for implementing systems for collecting, investigating and analysing aircraft occurrences which may affect its airworthiness, and holding (or providing access to) aircraft design information.

6.1.2.14 Note that DASA does not currently issue an explicit organisational approval for MTCHs, although this may change. Instead, the proposed MTCH arrangement is evaluated by DASA as part of its deliberations on whether to issue a MTC.

6.1.2.15 **Military Permit to Fly.** It is possible for DASA to issue a MTC for a new aircraft type immediately upon its addition to the Defence Register. More likely, however, there will be a period where the aircraft is not yet ready for a MTC because, for example:

1. the aircraft design is still under development
2. compliance demonstration evidence is still being created or compiled
3. Defence's MTC will leverage off the certification of another NAA/MAA, which is yet to be finalised

Superseded

6.1.2.16 DASA can issue a Military Permit to Fly (MPTF) to a MAO[8] in advance of the MTC if satisfied the aircraft design substantially complies with its agreed TCB, the configuration of the subject aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions and for specified purposes, and any elevated risk has been justifiably retained. However, since the MPTF will usually impose (often significant) risk controls that limit the operation of the aircraft, extended operations under an MPTF are not common.

6.1.2.17 **Military Design Organisations (for in-service support).** Finally, throughout an aircraft's operational life, design changes are inevitable to remedy design defects, address obsolescence issues, design repairs, implement capability enhancements, and so on. These design changes will often be the purview of one or more DASA-approved MDOs, which are typically (but not essentially) the same as the MDOs that support the MTCH function.

6.1.2.18 Ultimately, both the MTCH and Continuing Airworthiness Management Organisation (CAMO – see below) must be able to demonstrate that sufficient design support arrangements are in place to maintain the safety of the aircraft[9], before a new aircraft is operated on the Defence Register. Depending on the aircraft acquisition contract, this design support function might initially be provided by the aircraft Original Equipment Manufacturer (OEM); if so, the in-service MDOs might not be needed immediately.

6.1.2.19 **Summary.** Summarised, the four DASA design-related authorisations that are usually relevant to aircraft acquisitions are presented in Figure 2. The MTCH is depicted in a different colour, to show that DASA does not (yet) directly issue an MTCH approval.

Figure 2: DASA authorisations related to aircraft design

6.1.2.20 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MDOs, MTCs, MPTFs and MTCHs.

Aircraft production (or construction)

6.1.2.21 A MTC focuses on the safety of an aircraft's design. It does not consider the subsequent manufacture and assembly of the design, which is the purview of aircraft production (or

Superseded

'construction' in historic Defence parlance). The two DASA authorisations relevant to new aircraft production are Military Production Organisations and Military Certificates of Airworthiness.

6.1.2.22 **Military Production Organisation.** A Military Production Organisation (MPO) is a DASA-approved organisation that can manufacture and assemble parts, appliances, aircraft, engines or propellers to approved design data[10]. In the context of a Defence aircraft acquisition, MPOs can manufacture and assemble both the baseline aircraft (often called the 'green' aircraft) and the Defence-unique modifications to the green aircraft. They may be the same organisation, or there may be multiple different MPOs.

6.1.2.23 More commonly for new aircraft, however, Defence leverages the oversight provided by a DASA-recognised NAA/MAA of certain production organisations. This can reduce, or even eliminate, the need for DASA-approved MPOs.

6.1.2.24 **Military Certificate of Airworthiness.** As noted previously, a MTC is issued for an aircraft type. A separate DASA authorisation needs to subsequently be issued for each aircraft tail, namely the Military Certificate of Airworthiness (MCoA)[11], once DASA is satisfied the produced aircraft conforms to the design covered by the MTC. Central to DASA issuance of a MCoA is evidence that each product, part or appliance conforms to the approved design data and is in condition for safe operation.

6.1.2.25 A MCoA cannot be issued prior to the MTC. Where a new Defence aircraft is to be flown under a MPTF prior to the issue of a MTC, the MPTF effectively provides the function of the MCoA. As part of the process for seeking a MPTF, an applicant will need to demonstrate that the produced aircraft does indeed conform to the currently approved design data.

6.1.2.26 **Summary.** Summarised, the two DASA production-related authorisations that are usually relevant to new aircraft acquisitions are presented in Figure 3.

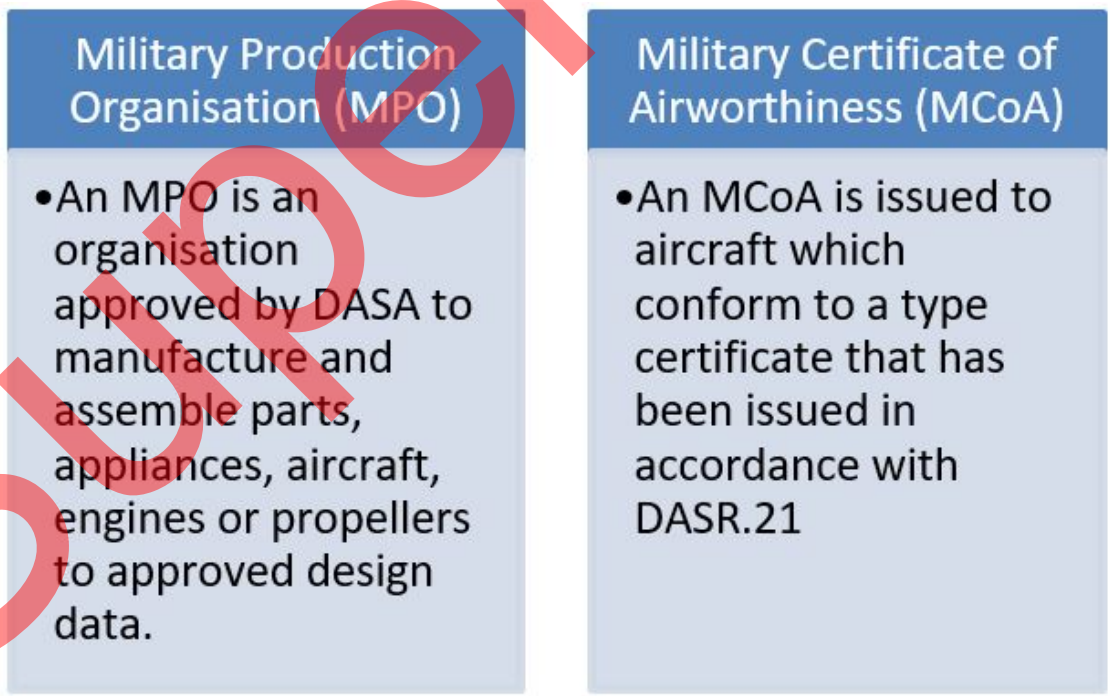


Figure 3: DASA authorisations related to production

6.1.2.27 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MPOs and MCoAs.

Superseded

Aircraft maintenance (continuing airworthiness)

6.1.2.28 While Defence has long used the colloquial term of 'aircraft maintenance' to cover airworthiness activities beyond aircraft design and production, the DASRs purposely use the more expansive term of 'continuing airworthiness'. Aircraft maintenance is any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component. Continuing airworthiness encompasses this, plus maintenance management, maintenance training and maintenance licensing. For completeness, this section will use the term 'continuing airworthiness'.

6.1.2.29 Robust continuing airworthiness arrangements must be in place prior to the operation of a new Defence aircraft. Once assured of the sufficiency of these arrangements, DASA may issue three relevant organisational approvals, namely Continuing Airworthiness Management Organisations, Approved Maintenance Organisations and Maintenance Training Organisations. DASA may also approve Aircraft Maintenance Programmes and issue Military Aircraft Maintenance Licences to eligible personnel.

6.1.2.30 **Continuing Airworthiness Management Organisation.** Continuing Airworthiness covers all processes that ensure an aircraft continues to comply with initial airworthiness requirements and supports the ongoing validity of the aircraft's MCoA. The Continuing Airworthiness Management Organisation (CAMO), while not directly responsible for actual aircraft maintenance, is responsible for engaging organisations to conduct design and maintenance services. The CAMO will:

1. engage MDO(s) for design services as required
2. engage the MTCH for any matters that impact the aircraft's type design and type certification under MTC or an individual aircraft's CoA]
3. task AMOs to maintain products (aircraft, engines and propellers), parts and appliances and
4. provide governance and oversight to organisations performing DASR M functions on its behalf.

6.1.2.31 In most cases, the acquisition of a new aircraft type will not result in the creation of a new CAMO; rather, the scope of an extant CAMO will be expanded to include the new aircraft type. The presence of a suitable CAMO is integral to DASA's approval of a new MAO, or adding an additional aircraft to an extant MAO's scope.

6.1.2.32 **Aircraft Maintenance Organisations.** DASR provides two avenues for the maintenance of an aircraft and its components. The first is a DASA-approved Approved Maintenance Organisation (AMO), and the second is 'another maintenance organisation accepted by DASA'. A combination of both is usually employed for Defence aircraft.

6.1.2.33 An AMO is an organisation approved by DASA to conduct aircraft maintenance activities. This includes all actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness. AMOs may be a military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types. New Defence aircraft may be supported by one or several AMOs.

6.1.2.34 DASR Part M makes provision for maintenance services to be consumed from other maintenance organisations that are accepted by DASA. While the regulation infers that DASA explicitly accepts each of these maintenance organisations, this is not normally the case. Rather,

Superseded

DASA will automatically accept a maintenance organisation provided it is oversighted by a NAA/MAA that is 'recognised' as competent by DASA, and provided the CAMO ensures the conditions and caveats on the relevant 'recognition certificate' are met. Recognition certificates for each NAA/MAA recognised by DASA are available on DASA's website.

6.1.2.35 Prior to operation of a new Defence aircraft, the CAMO must demonstrate that arrangements are in place to maintain the aircraft in an airworthy condition. In limited circumstances, DASA may agree to the temporary absence of some maintenance arrangements, but only where this does not affect the near-term support of the aircraft.

6.1.2.36 **Aircraft Maintenance Programme.** An Aircraft Maintenance Programme (AMP) describes the scheduled maintenance tasks, their frequency of completion, the associated maintenance procedures, and so on, necessary to preserve the airworthiness of the aircraft. For aircraft acquisition projects, an initial AMP must be approved by DASA prior to the conduct of any maintenance activities. Maintenance activities can in some cases pre-date flying operations on the Defence Register, since they include aircraft preservation and other maintenance tasks required to prepare the aircraft for operation.

6.1.2.37 **Military Aircraft Maintenance Licenses.** AMOs require some personnel to hold particular categories of Military Aircraft Maintenance Licences (MAMLs). Furthermore, in order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML requires their licence to be endorsed with the relevant aircraft type ratings. As part of the AMO approval process for a new aircraft, the AMO will need to demonstrate that its personnel hold sufficient and applicable MAMLs.

6.1.2.38 **Maintenance Training Organisation.** A Maintenance Training Organisation (MTO) conducts training and examinations for maintenance personnel as specified in DASR 66. While a new MTO would rarely be required for a new Defence aircraft, an extant MTO would need to demonstrate its competence to conduct the type/task training and assessments for the new aircraft.

6.1.2.39 **Summary.** Summarised, the five DASA authorisations related to continuing airworthiness (of which maintenance is a component) of Defence aircraft acquisitions are presented in Figure 4.

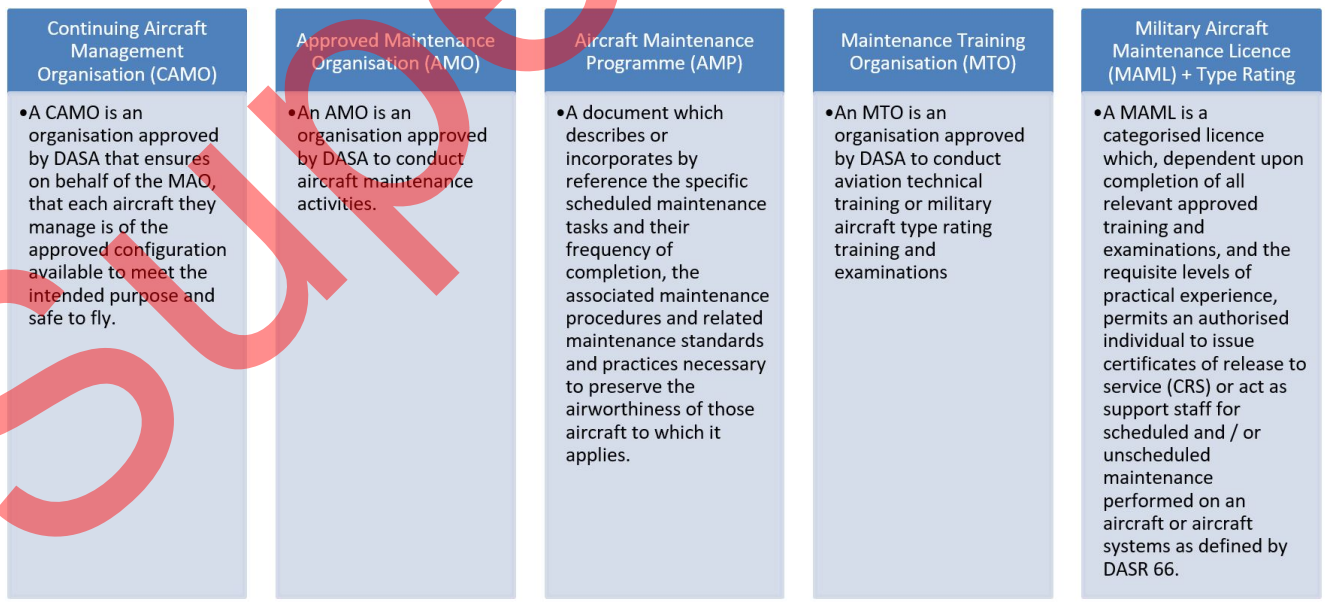


Figure 4: DASA continuing airworthiness-related authorisations

Superseded

6.1.2.40 DASPMAN Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into CAMOs, AMOs, AMPs, MTOs and MAMLs.

Aircraft operation

6.1.2.41 A Military Air Operator Certificate (MAOC) is the principal authorisation granted by DASA to conduct military air activities. Each aircraft type operated by the MAO is authorised by a separate DASA-issued Operations Specification (OpSpec) annex. The OpSpec annex details, amongst other things, key positions of the MAO, operating provisions, roles and tasks, specific approvals, and any limitations or conditions imposed by DASA.

6.1.2.42 The relevant OpSpec annex is required before first flight of the aircraft by the MAO[12]. DASA will issue the OpSpec annex once assured that the necessary Fundamental Inputs to Capability (FIC) elements, as well as quality and safety management systems, are in place to support intended operations.

6.1.2.43 Preparing a MAO to take on a new Defence aircraft can be a substantial undertaking. Amongst other things, for the new aircraft type the MAO will need to:

1. define the operating intent and usage for the aircraft through an approved Statement of Operating Intent and Usage (SOIU)
2. ensure arrangements are in place for maintaining the airworthiness of the aircraft through a CAMO and AMOs
3. implement the multitude of systems needed to manage Operations personnel and Air operations
4. produce/accept Orders, Instructions and Publications (OIP)[13]
5. establish an Aviation Safety Management System (ASMS).

6.1.2.44 Implementing these requirements, even for an existing MAO, is likely to require considerable planning and effort. Consequently, DASA recognises that a graduated capability growth plan for operational authorisations may be required. The Aviation Safety Acquisition Management Plan (ASAMP - see Chapter 6.1.1 and later in this chapter) is a suitable repository for reflecting the status of the acquisition program, including details of work completed, re-programing of remaining activities and risk management for the incomplete tasks.

6.1.2.45 **Summary.** Summarised, the singe DASA flight operations-related authorisation relevant to aircraft acquisitions is presented in Figure 5.

Superseded

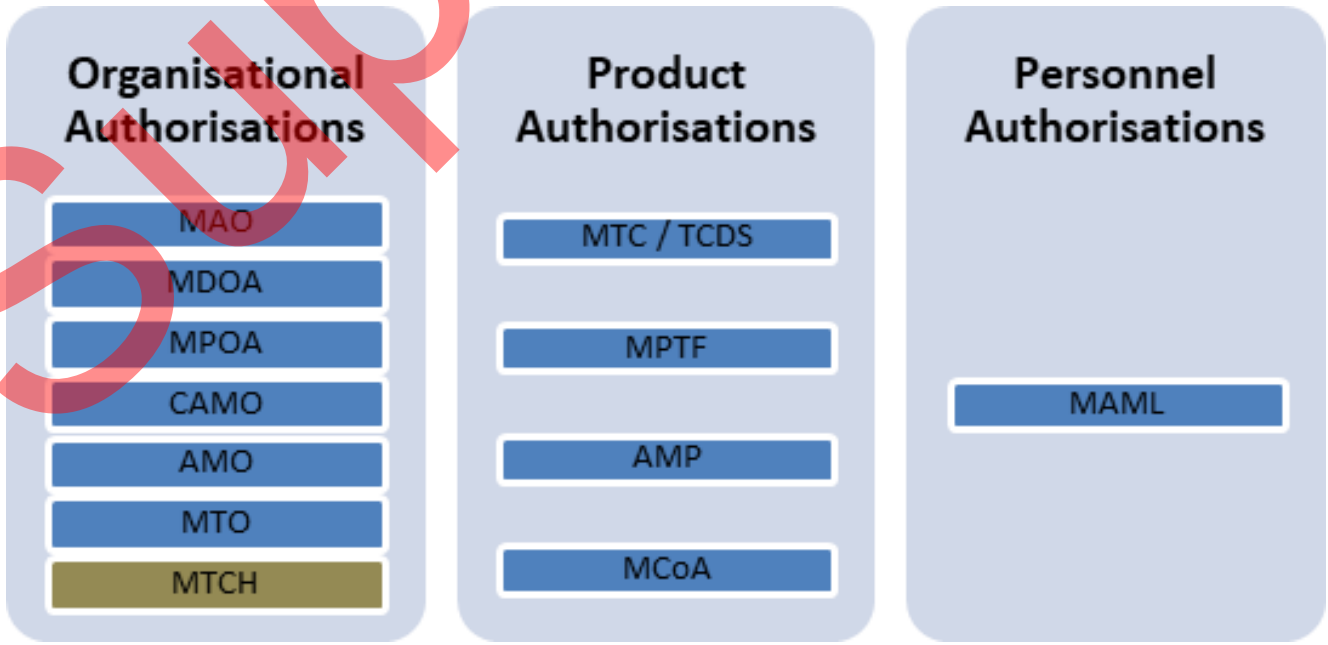
Figure 5: DASA authorisations related to aircraft operations

6.1.2.46 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MAOs.

Summary

6.1.2.47 This section has presented an overview of the DASA authorisations that may be relevant to new aircraft design, construction, maintenance and operation. Depending on the acquisition arrangements and the aircraft role, some authorisations might not be required.

6.1.2.48 The diagram at the start of this section (Figure 1) summarised all of the possible DASA authorisations according to whether they were relevant to new aircraft design, construction, maintenance or operation. However, another way of grouping them is according to whether they are organisational, product or personnel authorisations, as shown in Figure 6.



Superseded

Figure 6: DASA authorisations for new aircraft (grouped by category)

6.1.2.49 This grouping has the advantage that the eight organisational authorisations all use substantially the same processes for application and approval, and the three product authorisations have strong synergies. Consequently, for simplicity, this grouping will be used in the next section.

Processes, Plans and DASA Interaction

6.1.2.50 The previous section presented an overview of the DASA authorisations that may be relevant to new aircraft acquisitions. While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that achieving the authorisations can be a complex and protracted journey. This section guides the reader though the process of achieving these DASA authorisations.

6.1.2.51 Figure 7 shows how the various DASA authorisations usually fit onto a project timeline. The vertical stripes present four significant milestones for introducing a new aircraft to Defence, the items above the dashed line show DASP-related project and Command activities, and the items below the line show the DASA authorisations. A time scale has purposely not been included, because this can vary enormously between aircraft acquisitions.

Superseded

Figure 7: Common project timeline for DASA authorisations

6.1.2.52 The elements below the dashed line can broadly be grouped into five activities, as shown in Figure 8. With the exception of Activity 1, the remaining activities are rarely sequential; more often than not Activities 2 and 3 are executed concurrently, and several activities may be cyclic.

Superseded

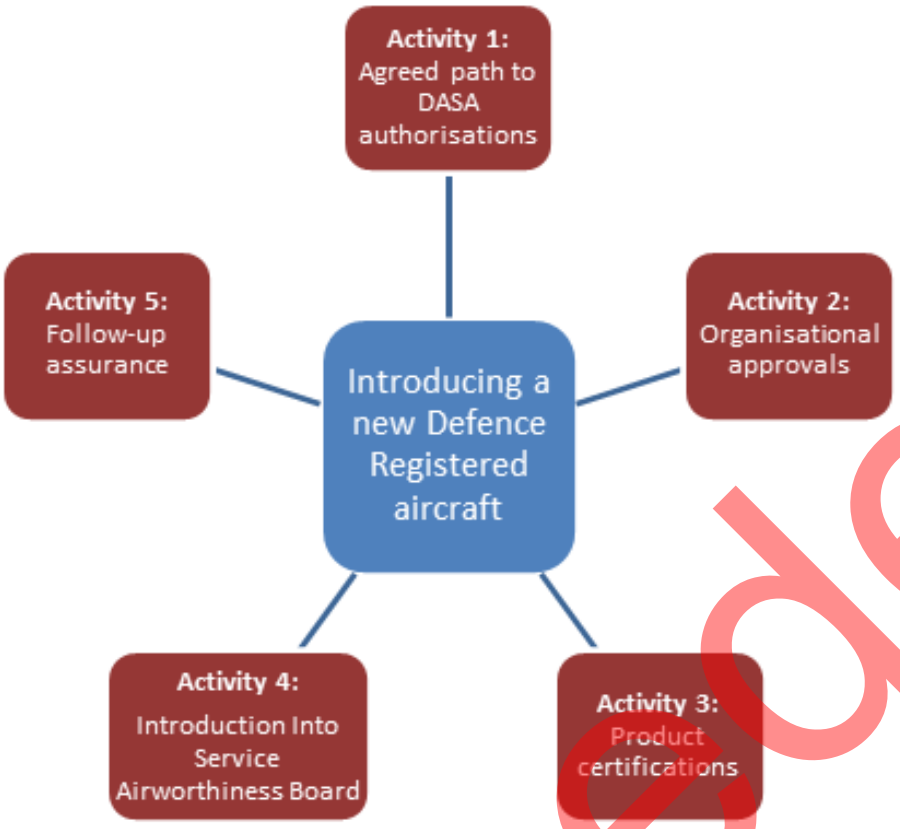


Figure 8: Activities in introducing a new Defence aircraft

6.1.2.53 Each of these five activities from Figure 8 is explored below.

Activity 1: Agreed path to authorisations

6.1.2.54 A major milestone in the aircraft acquisition process is the achievement of a range of DASA authorisations. However, establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with DASA is therefore in the best interests of all parties.

6.1.2.55 **Initial engagement.** Engagement should ideally commence as soon as Defence's acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[14]. Engagement should be well-advanced before Defence issues any tender documents (eg Requests for Tender, Foreign Military Sales Letter of Requests, etc) that may later affect an authorisation.

6.1.2.56 The initial engagement should involve DASA specialists, the Defence acquisition organisation, and capability manager representatives. If known, the Defence and industry organisations that will support the aircraft could also participate. Key outcomes will be:

1. a shared understanding of the project scope and schedule, candidate aircraft and the likely scope of Defence-unique design changes

Superseded

2. initial views on which of the seven DASA organisational approvals are likely to be needed and, for those that may not be needed, agree on the alternative means of achieving the same safety outcomes

3. initial views on how the aircraft might achieve an MTC, including how current or future certifications by DASA-recognised national or military airworthiness authorities (NAA/ MAAs) might contribute

4. initial views on whether an MPTF might be required to allow for test and other flying prior to the issue of an MTC

5. DASA should provide a management overview of each likely DASA authorisation, including: key milestones, common approval timeframes, recommended DASA collaboration, availability of training and other guidance material, and so on.

6.1.2.57 Annex A presents an expanded version of the above list, which can be used as a set of talking points for this initial engagement. Depending on the acquisition strategy, some of the details may initially be sparse. If so, further engagement should be scheduled for when the information is likely to become available, but still before releasing RFTs or equivalent documents.

6.1.2.58 **Documented agreement.** As noted in Chapter 6.1.1, DASRs do not mandate a plan or agreement for achieving DASA authorisations. It is, however, a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage aviation safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.2.59 DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between Applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies.

6.1.2.60 Annex B presents the suggested content and management arrangements for an ASAMP. Summarised, it suggests the main body of the ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistical and safety management activities. It should also describe the management of flight operations during acquisition, particularly if operations are to commence under an MPTF.

6.1.2.61 Annex B also suggests the ASAMP should include a series of annexes, with individual annexes dedicated to each DASA authorisation. Each annex could be sponsored by the relevant Applicant for the DASA authorisation, and could form an agreement between DASA and the Applicant on the path to the particular authorisation. For simple acquisitions, the annexes might directly present the information[15]. For more complex acquisitions, particularly where there are a range of Applicants for the various DASA authorisations, the annexes might merely contain a link to a planning document that is drafted and managed by the respective Applicant. Either way, the annexes should be 'modular', whereby each annex is configuration managed and approved separately to the main body of the ASAMP.

Superseded

6.1.2.62 The ASAMP should be drafted after the acquisition strategy solidifies (usually post Government approval), but before RFTs (or equivalent) are released. The ideal time to draft the ASAMP is usually soon after the initial engagement with DASA, and in fact that engagement will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since the path to most DASA authorisations should be clear.

6.1.2.63 Once contracts and agreements are signed, the main body of the ASAMP need only be updated when there is a marked change in the acquisition strategy or high-level schedule for the project. The annexes, on the other hand, will probably be updated more frequently, particularly in the earlier stages of the project as knowledge and plans evolve.

6.1.2.64 **Ongoing engagement.** DASA's experience is that three forms of engagement should be maintained throughout the project lifecycle, as follows:

1. Periodic major stakeholder engagements, expanding on the initial engagement suggested previously in this section. This should occur throughout the acquisition project lifecycle, usually when significant milestones are approaching

2. Frequent coordination and status updates between senior project management staff (commonly the CASG Project Engineering Manager, the CM Transition Team lead, etc), and DASA's operational and technical leads for the acquisition

3. Engagement as required between each of the Applicants for a DASA authorisation and the respective DASA specialist.

6.1.2.65 **DASA assistance with contract reviews.** There is no DASR requirement for DASA to be engaged in seeking offers (eg RFT or equivalent), selecting the successful tenderer, negotiating the contract, and signing the contract. However, where a contract element may one day affect a DASA authorisation, prudent DASA involvement can reduce project cost and schedule risk. Areas where DASA can contribute include:

1. Prior to RFT (or equivalent) issue:

    i. confirming the RFT requirements for organisational approvals are appropriate for aircraft acquisition and/or in-service support

    ii. confirming the RFT airworthiness design requirements (including airworthiness codes and other standards), and proposed approach to aircraft certification, present a suitable pathway to MTC

    iii. confirming the RFT aircraft production arrangements present a suitable pathway to issue of MCoA

    iv. confirming aircraft registration pathways, particularly for significant modifications to a green aircraft by a third party

Superseded

v. providing expert input to specialist aircraft design technology requirements, such as aircraft structural integrity (ASI) design and in-service management systems.

2. For RFT assessment:

i. If any of the above RFT items seek preliminary plans for DASA organisational approvals or product certifications, then DASA can participate in the assessment of those plans

ii. otherwise, while the Defence acquisition organisation will conduct the tender evaluation, DASA staff are available for on-call advice and assistance as required[16]

3. For contract negotiation: DASA staff would rarely be directly involved in contract negotiations, but are available for on-call advice and assistance as required.

4. Final contract review: DASA does not review the mature contract prior to signature, but is available for advice and assistance as required.

6.1.2.66 **Delegations.** During the project lifecycle, organisations may elect to delegate their Command responsibilities, for example the appointment of the senior operator within the project transition team to make operational decisions in relation to the project. Once notified of the delegation, DASA will treat the decisions and approvals of the delegate as if the accountable manager had issued them.

6.1.2.67 Later in the project lifecycle, usually just before MTC issue, a 'Platform DoSA' will need to be appointed by DASA. The Platform DoSA role is normally delegated to the incumbent Defence CENGR of the platform MTCH organisation, and is responsible for assurance of MTCH actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. DASP Manual Volume 3 Chapter 4.3, Delegates of the Safety Authority, provides additional information.

Activity 2: Organisational approvals

6.1.2.68 Professional aircraft design, construction, maintenance and operation organisations are cornerstone to aviation safety. Implementing the required organisations for a new aircraft, and obtaining DASA approval of each organisation, is usually a significant activity for both the Applicants and DASA. This section explores the planning, establishment and assessment of new DASA-approved organisations.

6.1.2.69 **Planning.** As noted in Activity 1, the ASAMP should include a planning annex for each organisational approval. The ASAMP should plan for the organisational approvals to be achieved well prior to their need date, which are likely to be as follows:

Superseded

1. MAO: DASA authorisation is required prior to the first operation of the aircraft by the MAO[17]. This authorisation is reflected in DASA's issue of an OpSpec annex for the new aircraft

2. MDO:

   i. (for initial aircraft design): Required prior to design changes to the green aircraft, if those changes are not to be certified by a recognised NAA/MAA

   ii. (for in-service support): Required prior to first flight on the Defence Register, unless DASA has agreed to an alternative interim support arrangement

3. MTCH: Implementation of suitable MTCH arrangements are a prerequisite for issue of an MTC. However, depending on the acquisition arrangement, some of these functions may need to be in place earlier to support the initial MPTF

4. MPO: Required prior to any aircraft production activity, unless an alternative production approval path has been agreed by DASA

5. CAMO: Required prior to first flight of the aircraft on the Defence Register

6. AMO: Required prior to first flight of the aircraft on the Defence Register[19], unless an alternative interim maintenance arrangement has been agreed by DASA. AMOs will need MAMLs in sufficient numbers to meet AMO needs, relevant to the scope of operations and numbers of aircraft

7. MTO: Agreed in consultation with DASA.

6.1.2.70 Note that while DASA agreement to the above authorisation plans is not a regulatory requirement, it is encouraged by DASA. As Figure 9 shows, the time needed to implement a new organisation and then achieve a DASA organisational approval can be substantial, so careful management is needed to minimise Defence's schedule risk.

Superseded

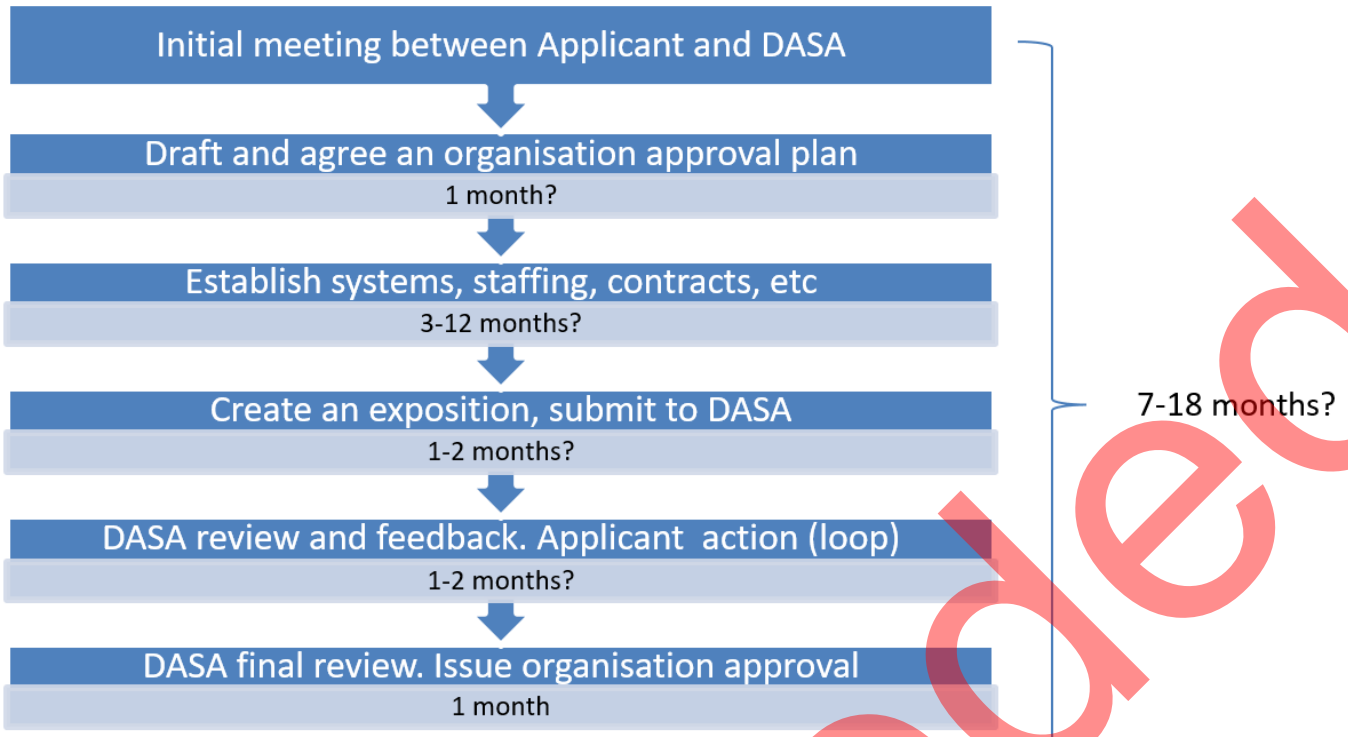


Figure 9: Timeline for DASA organisational approvals

6.1.2.71 **Establishing organisations.** DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, presents a description of each DASA organisational approval, including the key artefact(s) needed to show regulatory compliance - for example, the MDO's design organisation handbook, the AMO's Maintenance Organisation Exposition (MOE), the MAO's Operations Compliance Statement (OCS), and so on. Each of these artefacts will help guide the Applicant's efforts to establish an organisation that professionally supports Defence aviation safety, as will the Acceptable Means of Compliance (AMC) and Guidance Material (GM) accompanying the relevant DASRs. DASA-sponsored education courses and DASA website material also offer useful information.

6.1.2.72 However, Applicants must bear in mind that such guidance may be incomplete, or not entirely relevant to the local context. Consequently, DASA cannot overstate the importance of the Applicant's role in refining the organisation beyond DASR (and DASA) requirements. This might include, for example:

1. learning from other Defence organisations
2. learning from comparable civil organisations[20]
3. exploring the (often extensive) guidance material released by other NAA/MAAs[21]
4. consulting with staff and others with relevant domain expertise.

6.1.2.73 A robust and evolving Aviation Safety Management System (ASMS) is pivotal to establishing an organisation that optimises its contribution to Defence aviation safety. An ASMS utilises a systematic

Superseded

approach to managing aviation safety, including organisational structures, accountabilities, policies and procedures. An effective ASMS continuously improves an organisation's safety performance through pro-actively collecting and analysing safety data to predict, prevent and treat aviation hazards and risks. DASP Manual Volume 3 Chapter 6.2, Safety Management, provides further guidance.

6.1.2.74 **DASA assessment.** The annexes in Chapter 5.3 provide insight into DASA's approach to assessing, and ultimately approving, a new or expanded organisational approval. Most approvals follow a similar process, namely:

1. the Applicant drafts an 'Exposition' or similar document, as key evidence that their organisation has implemented the systems and processes needed to comply with the relevant DASRs

2. the applicant submits the relevant DASR Form to seek an organisational approval

3. DASA conducts an assessment of the Exposition and the documents it references, often as a desktop activity for new organisations; on occasion DASA may do an on-site assessment

4. if needed, the applicant remedies any deficiencies that preclude DASA's approval of the organisation

5. DASA issues an organisational approval, perhaps initially limited in scope

6. once the aircraft is operating and the organisation has the opportunity to exercise its approval, DASA will conduct a deeper assessment, usually including an on-site visit, placing particular emphasis on the effectiveness of the ASMS and system monitoring.

6.1.2.75 Figure 10 summarises the path through to DASA approval for the seven organisations common to new aircraft acquisitions.

Superseded

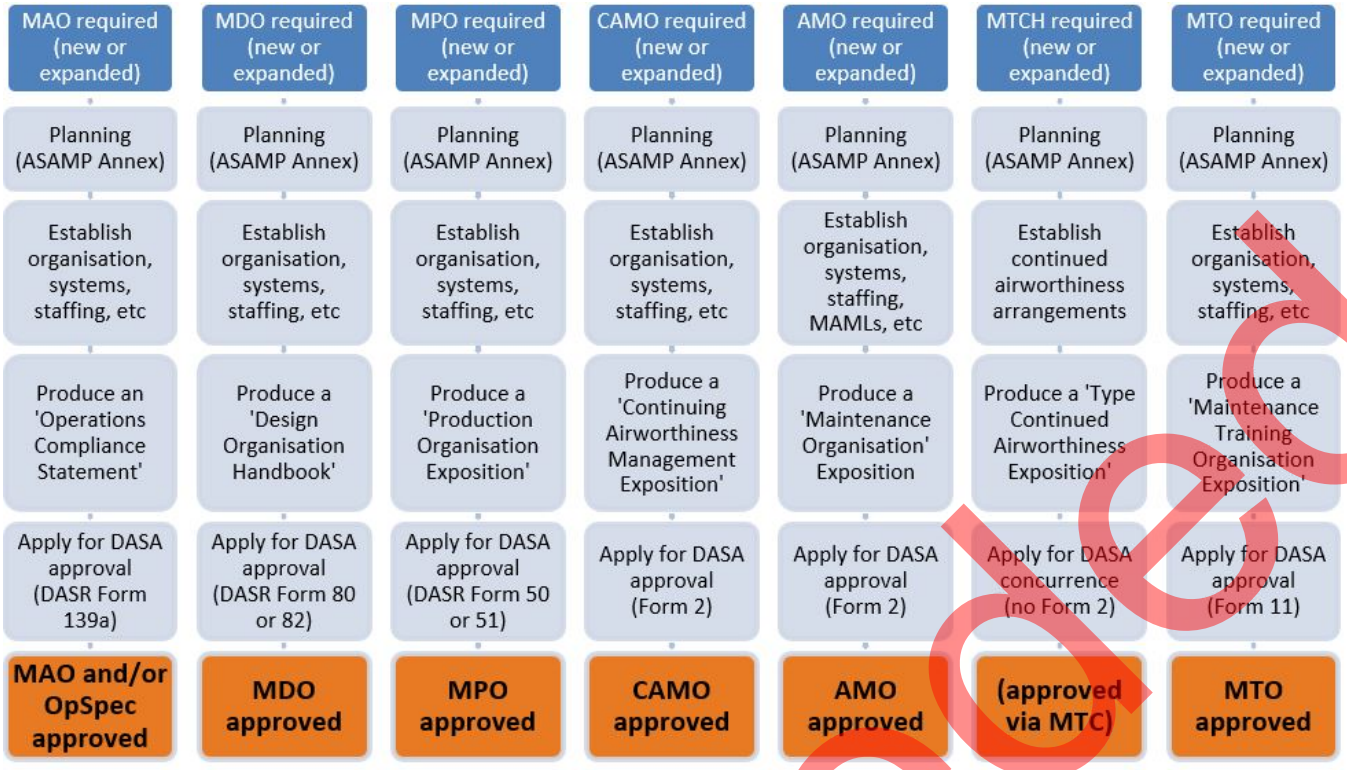


Figure 10: Path to DASA organisational approvals

Activity 3: Product authorisations

6.1.2.76 The four common product authorisations for new aircraft are the MTC, MCoA, MPTF and AMP. While an MPTF will often be issued prior to an MTC and MCoA, preparatory work on the other two will usually precede and support the issue of the MPTF. Hence, this section will consider the MPTF last.

6.1.2.77 Before exploring the four product authorisations, some brief discussion on safety risk management is warranted. Risk management is almost always a contributor to MTC and MPTF authorisations, so all stakeholders need to be conversant with Defence's 7-step risk management approach, as explained in the DASA Advisory Circular 003/2018, Risk Management in the DASP. Furthermore, DASA's experience is that this risk management is most effective when all parties robustly consult, cooperate and coordinate with each other. Critically, this must occur across organisational boundaries, and across specialisations (most notably between operators and engineers).

6.1.2.78 **MTC.** Achieving an MTC for a new aircraft is a significant milestone for an aircraft acquisition project, and one that commonly takes substantial planning and effort. While the path to an MTC is explored in DASP Manual Volume 3 Chapter 7.2, Certification, for the benefit of readers not needing that depth of information, a brief description of the process is included here.

Superseded

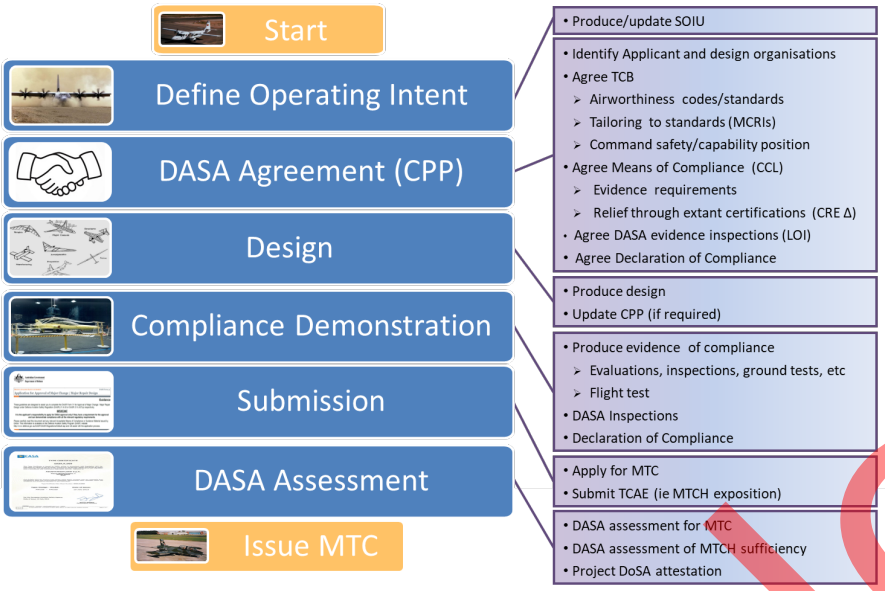


Figure 11: Path to issue of an MTC

6.1.2.79 An overview of the type certification process, culminating in an MTC, is shown in Figure 11. The first step, defining the operating intent for the aircraft, is pivotal to designers producing a design that is safe for Defence's intended Configuration, Role and Environment (CRE). A poorly-developed operating intent, or one developed late in the design lifecycle, can (and previously has) resulted in:

1. additional cost to re-design elements of the aircraft
2. operational limitations to eliminate the elevated risk, or
3. management and retention of elevated risk, often for the life of the aircraft.

6.1.2.80 The second step shows the Applicant and DASA agreeing on a Certification Program Plan (CPP). While a CPP is not explicitly required by DASR, it is inconceivable that Defence would pursue a certification program without an agreed CPP, since it imposes obligations on both the Applicant and DASA. Critically, the CPP:

1. agrees on the Type Certification Basis (TCB) for the new aircraft, which comprises the airworthiness requirements (inclusive of tailoring) that the design must meet
2. agrees on the evidence that will be produced by the design organisation(s) to demonstrate the design complies with the TCB
3. agrees on the application of 'recognition of prior acceptance', where existing product certifications by DASA-recognised NAA/MAAs will contribute to the certification of Defence's new aircraft [22]
4. defines the extent of DASA's inspections of compliance demonstration evidence.

Superseded

6.1.2.81 The tailoring of the TCB, mentioned in the first sub-paragraph above, is accomplished using one of five types of Military Certification Review Item (MCRI)[23]. Four of these MCRIs either maintain or improve the safety of the aircraft design, while the fifth, the 'Exception MCRI', can approve a reduction in the safety of the aircraft design. This reduction is only justifiable where requiring compliance with a TCB requirement would adversely affect Defence capability. While DASA ultimately approves the Exception MCRI, it is based heavily on Command's confirmation that a capability imperative exists, and that the risks due to the TCB non-compliance have been eliminated or otherwise minimised SFARP. The document used to communicate and record these Command risk decisions is normally the Airworthiness Issue Paper (AwIP). Guidance for AwIPs is provided at annex C.

6.1.2.82 The third step in the certification process is where the design organisation produces the design. For new Defence-unique designs, this often requires a DASA-approved MDO unless the design will be certified by a DASA-recognised NAA/MAA, as explained earlier in this chapter. The MDO must be in place before the design effort commences.

6.1.2.83 The fourth step, Compliance Demonstration, is where the MDO produces evidence that their design meets the DASA-agreed TCB. This step may require DASA approval of an MPTF to enable flight testing if the aircraft is already on the Defence Register. The MPTF is explored later in this section.

6.1.2.84 The fifth and six steps wrap up the certification process, and are largely self-explanatory. It is worth noting that while an Airworthiness Board (AwB) is not a prerequisite for DASA issue of an MTC, if the Defence Aviation Authority (Defence AA) elects to convene an AwB near to the MTC issue date, then DASA may wait until after that event to issue the MTC. AwBs are explored later in this chapter.

6.1.2.85 **MCoA.** As noted previously, an MCoA cannot be issued prior to the MTC. However, it is normal practice for the Defence acquisition organisation to be prepared in advance, so DASA[24] can issue MCoAs for the delivered fleet directly following the issue of the MTC. DASPMAN Volume 3 Chapter 5.3 presents the conditions and processes for MCoA issue.

6.1.2.86 **MPTF.** Once a new aircraft type has been added to the Defence Register, but prior to issue of the MTC, MAOs may need to operate the aircraft. For example, the flight test MAO may need to conduct flight tests to generate compliance demonstration evidence, and to contribute to operational test and evaluation (OT&E). The operational MAO may need to maintain crew currency, evolve OIP, conduct OT&E, and so on.

6.1.2.87 DASA can issue an MPTF if the aircraft design has been shown to substantially comply with its TCB, the configuration of the aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions, and any elevated risk has been justifiably retained. An MPTF is effectively reliant on both the MTC and the MCoA processes being well-advanced.

6.1.2.88 The initial MPTF will usually constrain the MAO's operation of the aircraft. After all, the type certification program is still incomplete so there will be areas of the design that are known to be deficient or where uncertainty still remains, and hence the MPTF will impose commensurate risk controls. DASPMAN Volume 3 Chapter 7.5, Flight Conditions and MPTFs, explores MPTFs and their associated flight conditions, including risk management, the application process, periods of validity, and so on. The MAO will often self-impose additional constraints on flight operations, and will ease these constraints as the systems and personnel skills mature.

Superseded

6.1.2.89 **AMP.** CASG's Reliability and Aircraft Maintenance Program (RAMP) team, which is collocated with DASA's Melbourne office, provides Defence's centre of expertise for AMPs, and advises DASA on whether an AMP should be approved[25]. Both DASA and the RAMP team should be engaged early in the acquisition phase for guidance on AMP requirements.

Activity 4: Convene an Airworthiness Board

6.1.2.90 As discussed in Chapter 6.1.1, the Defence AA would normally require that an AwB be convened prior to operation of a new aircraft on the Defence Register[26]. The Introduction into Service AwB, normally held immediately prior to the commencement of flight operations, complement regulatory activities conducted by the DASA and build on the confidence of DASA authorisations. This AwB is underpinned by progressive check-ins by the board members with both DASA and the regulated community, focussing on:

1. understanding the status of DASA assurance of relevant products and organisations
2. safety assurance of the collective enterprise (CM, CASG, Industry) introducing the new platform;
3. potential organisational culture hazards; and
4. transition safety risks associated with the introduction of the capability through to reaching initial operational capability milestones.

6.1.2.91 The artefacts submitted by Applicants to the AwB would predominantly consist of already produced project documentation and attestations that collectively summarise the readiness to commence Flight Operations:

1. Airworthiness Plans, Artefacts, Approvals and Authorisations
2. FIC Status and Capability Realisation
3. Integrated Airworthiness System Assessment
4. MAO Risk Management and OIP

6.1.2.92 The Defence AA would normally require progressive AwBs during the initial operating period for a new aircraft, most likely aligned with key Operational Capability milestones. Hence the AwB can explore whether the operational and support systems are maturing commensurately. Periodicity might be influenced by the severity of organisational and/or product deficiencies noted during DASA assurance activities and/or a previous AwB.

6.1.2.93 Annex D presents additional guidance on the submissions, requirements and conduct of an AwB for a new aircraft type.

Superseded

Activity 5: Follow-up DASA assessments

6.1.2.94 The organisational and product authorisation requirements presented in this chapter are seldom wholly implemented when the Applicants apply for the relevant DASA authorisations. Provided DASA is satisfied the safety risks due to the deficiencies can be robustly managed, this may not preclude DASA from issuing the authorisation, as explored in the following paragraphs.

6.1.2.95 **Organisational approvals.** When DASA initially issues an organisational approval, the processes and people may not yet have been exercised for the new aircraft type. For example, an MDO may not have produced designs, the MAO may not have exercised its ASMS, organisational deficiencies may have been identified by DASA, and so on. Equally, the organisation may self-identify temporary deficiencies in their own processes and people.

6.1.2.96 These issues may not preclude DASA from issuing the organisational approval if satisfied the organisation has the ability to safely operate and support the aircraft. DASA may elect to moderate this risk through, amongst other things:

1. placing limitations on operations, initially via the initial MPTF and later via the OpSpec
2. initially constraining the 'privileges' that are available to organisations under some regulations
3. re-visiting the organisation soon after their systems and processes have been exercised.

6.1.2.97 Over time, once DASA is assured the deficiencies or lack of experience have been addressed, the constraints may be eased. The Defence AA may convene AwBs to provide additional confidence.

6.1.2.98 **Product authorisations.** As a matter of pragmatism, a MTC can be issued before compliance with the TCB has been entirely demonstrated. As a result, the MTC may include temporary limitations, or the TCB may include temporary Exception MCRIs (with supporting AwIPs documenting essential risk management), pending resolution of the outstanding design issues. Once evidence of TCB compliance is provided to DASA's satisfaction, the limitations or other risk management measures can be progressively removed.

Project completion

6.1.2.99 Even after the above five activities have been substantially completed, residual issues may still be outstanding. Provided these issues are sufficiently few in number and complexity[27], they have been professionally transitioned to the running system, and any associated risks are being managed in the relevant ASMS, DASA will in due course consider the acquisition project to be closed.

6.1.2.100 The residual issues will be monitored by DASA through normal compliance assurance activities.

Niche Applications

Superseded

6.1.2.101 So far, this chapter has focused on new aircraft types being acquired by Defence. This final section will explore three niche applications of the information presented in this chapter, namely fleet additions, acquisition of used aircraft, and Major design changes to in-service aircraft.

Fleet addition aircraft

6.1.2.102 When additional aircraft are to be added to an extant Defence fleet, the guidance presented earlier in this chapter is still mostly relevant, although it can be applied in a substantially abbreviated form. An assessment of each of the five activities from the previous section is presented below.

6.1.2.103 **Activity 1: Agreement on DASA authorisations.** The information presented in the previous section is entirely relevant. That is, the acquisition organisation should engage with DASA before contracts and other agreements are signed, and an agreed path to DASA approvals should be documented in an ASAMP. The ASAMP will be much abbreviated compared to the acquisition of a new aircraft type, and some of the ASAMP annexes will not be required.

6.1.2.104 **Activity 2: Organisational approvals.** Each of the organisational approvals will likely be in place, so this activity is limited to ensuring those organisations can manage the additional workload and (where applicable) the configuration differences of the new aircraft.

6.1.2.105 **Activity 3: Product certifications.** If the new aircraft are precisely the same configuration as the extant fleet, they can simply be listed on the MTC and individual MCoAs then issued for each new aircraft. More likely, however, there will be configuration differences. While other avenues may be acceptable, most often the new aircraft are added to the MTC mirroring the configuration of the extant fleet, and the configuration deltas for the new aircraft are processed as design changes (Major and Minor) to the common type design. If there will be a delay in completing this activity, an MPTF can be used to cover the configuration differences of the additional aircraft.

6.1.2.106 If there are substantial configuration differences to the extant fleet, perhaps even with changes to the TCB, the new aircraft might need to undergo a targeted type certification program that focuses on the configuration deltas. DASA's approval may be reflected as a separate model number on the MTC, or the deltas might be encompassed in a Military Supplemental Type Certificate (MSTC).

6.1.2.107 **Activity 4:** AwB. AwB independent review of additional aircraft would normally be considered as part of the next scheduled sustainment AwB. In exceptional circumstances, a separate AwB may be convened if the acquisition of additional aircraft requires appreciable changes to extant FIC arrangements.

6.1.2.108 **Activity 5:** Follow-up DASA assessments. The information on product deficiencies presented in the previous section is equally relevant to fleet addition aircraft. The information on organisational deficiencies, on the other hand, is unlikely to be applicable; rather, the next routine compliance assurance activity would check how the organisation is coping with the extra workload.

Used aircraft

Superseded

6.1.2.109 Where Defence elects to acquire used aircraft, the guidance presented earlier in this chapter is entirely relevant. However, there are additional actions that will need to be undertaken for Activity 3: Product Certification, namely the provision of additional documentation and the completion of additional inspections to support the issue of an MCoA.

6.1.2.110 **Documentation.** DASR 21.A.174 presents a list of the additional documentation needed for a used aircraft, namely:

1. (if the aircraft originates from a foreign military applying an EMAR based regulations): a Military Airworthiness Review Certificate;

2. (if the aircraft originates from a civil state of registry that is recognised by DASA): an export certificate of airworthiness from the recognised CAA;

3. (if the aircraft originates from elsewhere):

    i. a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer

    ii. a weight and balance report with a loading schedule

    iii. the flight manual and any other manuals required by the Authority of the State of registry

    iv. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness

    v. a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

6.1.2.111 **Inspections.** Used aircraft require a more stringent inspection than new build aircraft, and must be performed by an appropriately qualified, independent and experienced organisation. The inspecting organisation is to conduct a comprehensive review of the aircraft design, maintenance and operational documentation, verified by a physical inspection of the airframe structure, engines and other systems.

6.1.2.112 The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:

1. details of the aircraft inspected, including registration number, manufacturer, serial number, model designation, and Certificate of Airworthiness number

2. last known inspected configuration of the aircraft

Superseded

3. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and lifed component status

4. details of any major structural and life-limited component changes made to items such as wings and tailplane, and a summary of the individual histories of such components, unless new when fitted

5. details of any accidents or incidents in which the aircraft has been involved

6. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated

7. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies

8. a condition assessment of flight safety critical components and fatigue-sensitive structure

9. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection

10. flight manuals and any other manuals.

6.1.2.113 Should Defence be contemplating the acquisition of used aircraft, DASA should be contacted early in the decision process. DAVENG staff in particular will provide the acquisition project with useful guidance.

Major design changes

6.1.2.114 This chapter has so far focused on aircraft acquisitions. However, the content can be extensively applied to particularly complex Major design changes to in-service aircraft. A Major design change is one that has an appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product .

6.1.2.115 Defence currently conducts around 70 Major design changes to its fleet each year. Most of these design changes have little if any significant impact on the aircraft operator or support organisations. Occasionally, however, Defence undertakes a Major design change whose effects pervade the DASP.

6.1.2.116 An example might be an extensive mid-life cockpit upgrade, which will not only challenge the design organisation, it can extensively affect MAO OIP, require simulator upgrades, change the aircrew training curriculum, allow new Performance Based Navigation approvals, require additional maintenance equipment and training, require new production organisations, require parallel operations of two different aircraft configurations for extended periods, and so on. An extensive flight test program to explore human factors and other certification issues might also be required.

Superseded

6.1.2.117 Making such pervasive changes to the aircraft and supporting systems can be a complex undertaking that requires coordination and often robust risk management across multiple organisational boundaries. While it perhaps does not have the complexities of introducing a new aircraft into service, it is far from straightforward and can introduce elevated safety risks if not executed well. In such circumstances, increased independent assurance from DASA is likely to benefit aviation safety.

6.1.2.118 Where DASA, in consultation with the MAO and CASG, identifies a Major design change that warrants this expanded DASA independent assurance, DASA will treat the project similarly to an aircraft acquisition. This may include, for example, increased scrutiny of organisational approvals, a closer assessment of how the new configuration is introduced into service (including, if necessary, imposing temporary operating constraints), greater assurance of risk management decisions, and so on. The Defence AA may require an AwB to be convened to provide an independent review of how well the new configuration has been integrated into Defence.

6.1.2.119 For these Major design changes, the guidance in the previous section is applicable almost in its entirety. Notably, an ASAMP should be raised, albeit some elements will self-evidently either be of limited scope or not applicable. An SOIU update may be required, organisational approvals may need to be expanded, and so on. The only element that is unchanged is the type certification process, since DASA certification oversight is always implemented commensurate with risk, and this is unaffected by the additional DASA scrutiny outlined in this section.

Annexes:

1. Project Initiation Meeting
2. ASAMP Guidance
3. Airworthiness Issue Papers
4. Airworthiness Board Guidance

6.1.3 Acquisition of Non-Defence-Registered Aircraft

Introduction

6.1.3.1 Civil registration of a Defence aircraft may be attractive to Capability Managers (CMs) and acquisition organisations. It may provide contractual and ongoing management simplicity, and sometimes lower costs and result in a faster introduction into service.

6.1.3.2 Regardless of the registration arrangement, Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people, and facilities on the ground. However, in the case of non-Defence-Registered (NDR) aircraft, DASA has a comparatively lesser role in guiding and assisting Command in meeting these obligations.

Purpose

Superseded

6.1.3.3 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators through the aviation safety requirements and recommended practices during the acquisition of an NDR aircraft, but only to the extent, that DASA is involved in the process.

CONTENT UNDER REVIEW

Circa 2023, DASA is currently conducting a major review of the DASA approach and regulations for non-Defence Registered (NDR) aircraft. The review will assess, amongst other things, the legal implications of a State aircraft being regulated by a civil regulator, the need (if any) for DASR regulations to supplement the civil regulations, the role of DASA (if any) in aviation safety assurance, and so on.

Once the review is completed, DASR.NDR and this DASPMAN chapter will be updated. In the meantime, Defence organisations considering the acquisition of a NDR aircraft should contact DASA for advice.

Superseded

Annex A - Aircraft Registration Discussion Points

(a) This annex is intended to guide discussions between the Capability Manager representative, the Defence acquisition organisation and DASA, to help the Capability Manager make an informed decision whether a new aircraft should be Defence or civil registered.

Capability Requirement

(b) To the extent of current knowledge, the Capability Manager representative should provide insight into the following:

1. Will the candidate aircraft be a continuous 'state' aircraft, and if so, what is the duration of the capability requirement?
2. What are the candidate aircraft type(s)?
3. What is the likely scope of operations for the aircraft?
4. Of these operations, which are not normally associated with civil aircraft? Examples may include weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting hazardous materials and dangerous goods, etc
5. Is the operating environment for the aircraft likely to exceed civil norms? Examples include hostile electromagnetic environments, harsh physical environments, etc

Discussion

(c) With the context provided by the above information, discuss the following:

1. If the procured aircraft are to be continuously 'State' aircraft, what extenuating circumstances would support continued operation on the civil register?
2. Would any of the proposed military roles be precluded under civil regulations? If they are not precluded, might any be heavily restricted?
3. How much flexibility does the MAO require in the employment of risk management to meet regulatory requirements?
4. Will Commanders need the ability to deviate from regulatory requirements in the event of compelling operational imperatives or emergencies? Examples may include flying aircraft with design or maintenance deficiencies that present elevated levels of risk, flying 'due regard', etc.
5. What are the implications of Defence being bound to civil aviation safety regulations for design, maintenance and operation?
6. What are the diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas?

(d) The preceding discussion will assist the Capability Managers representative to identifying the potential drawbacks of civil registration. Where implications may be unclear, expert advice from CASA should be sought.

Superseded

Introduction

(a) Defence aircraft can be categorised by registration type into either Defence Registered, or Non-Defence Registered Aircraft. Categorisation by registration type is important because it determines which DASR parts apply to operation of the aircraft. In compliance with ICAO Article 18, aircraft will not be on more than one register at any time. Aircraft may transfer between registers.

(b) In Australia, the two Authorities that maintain aircraft registers are the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA). The terminology for equivalent overseas authorities is Civil Aviation Authority (CAA) for a civil authority and Military Aviation Authority (MAA) for a Military Authority. A nation is not likely to have more than one civil authority although there may be multiple military authorities as is the case in the USA.

(c) A Defence UAS that is not held on the Defence Register must be recorded on a local register in accordance with DASR UAS.10 (d) and (e)—with the exception of UAS operated under DASR NDR. Refer to DASPMAN Vol 3 UAS Part 2 Chapter 2 for local registration of UAS.

Purpose

(d) This chapter provides guidance on how MAOs and Project Offices (POs) request allocation of an Application Identifier (AI), request Defence registration of an aircraft, and request removal of an aircraft from the Defence Register. DASR ARO.60 is applicable to this chapter.

Defence Registration

(e) An aircraft owned or leased by Defence and that continuously operates as a State Aircraft should be Defence registered. Defence registration allows the full flexibility of the DASP to apply to an aircraft. It enables DASA authorisation of military roles, including the release of ordnance, low flying, and formation flying—types of operations that may be heavily restricted or unsupportable under civil regulatory requirements (applicable to civil registered Defence aircraft through DASR NDR.05(a)). Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR.

The Defence Register

(f) DASA publishes the list of registered aircraft on the DASA website. For each aircraft on the Defence Register the following information is recorded:

1. an Application Identifier (AI) unique to the aircraft type
2. an aircraft tail number
3. an aircraft model number
4. the manufacturer’s serial number of the aircraft
5. the aircraft delivery date
6. the Defence registration date
7. reference to DASA approval documentation

Superseded

8. the operating MAO.

Inclusion of aircraft on the Defence Register

(g) This section describes how MAOs (and SPOs on behalf of a MAO) request DASA to add or remove aircraft from the Defence Register.

(h) Defence Registration is a two-stage process. The first stage is allocation of an Application Identifier (AI) for each aircraft type. The second stage is the addition of each aircraft to the Defence Register following delivery and acceptance.

Application for aircraft type Application Identifier assignment

(i) DASA assigns an AI to aircraft types as a unique identifier. This AI appears on many DASA authorisations including the Military Type Certificate (MTC) and OpSpec. The AI also forms the first component of the registration markings of each aircraft (eg for AI 'A44' the tail numbers will be A44-nnn, where 'nnn' is the individual aircraft's unique registration number).

(j) A MAO (or their representative) may apply to DASA for issue of an AI. Ideally, this occurs after the government has provided acquisition approval for the aircraft. The application is normally via minute and should include evidence of government approval and details of the acquisition program including the:

1. make and manufacturer of the aircraft
2. number of aircraft sought
3. anticipated entry-into-service date.

(k) Following receipt of an application for an AI, DASA will review the application. If complete, DASA will allocate the next available AI, and create a record for the new aircraft type in the Defence Register. The MAO will then be notified of their assigned AI.

(l) **Assignment methodology.** DASA assign all Defence registered aircraft an AI. The first AI assigned A[1] was to DH9A in the early 1920s. DASA assigns AI's sequentially from A1 through to A99. When the allocation reaches A99, DASA starts a new series and issues AI from A1. Army and Air Force aircraft are assigned AI with the prefix 'A' whilst Navy aircraft numbering using the prefix 'N'.

Application for aircraft registration

(m) The second stage of aircraft registration is an application to DASA for registration of each aircraft tail. As aircraft registration is a pre-requisite for the issue of a Military Certificate of Airworthiness (MCoA), normal practice is for the MAO or PO to apply for registration immediately following delivery of each aircraft from the manufacturer.

(n) The application may take the form of a Minute, or by prior agreement with DASA, another document. The application must provide the following information and be supported with evidence:

1. the desired tail number
2. evidence that Defence has control of the specific aircraft, through either ownership or lease
3. evidence that the aircraft is not on another CAA/MAA register.

Superseded

(o) An applicant may prove control over an aircraft through evidence of ownership such as SG-01, DD1149 or DD-250 forms. For a leased aircraft, an extract from the lease agreement or form where Defence has accepted custody of the aircraft is sufficient.

(p) Prior to delivery, aircraft are usually subject to acceptance flight test activities. Generally, to conduct these activities the manufacturer has to comply with local registry requirements of their national MAA or CAA. For DASA to add the aircraft to the Defence Register, the applicant must provide evidence that the aircraft is not on any other register.

(q) Following receipt of an application for registration, DASA will review the application. If complete, DASA will add the new tail number to the Defence Register. Following registration, DASA will send a letter to the applicant, relevant MAO-AM, Environmental Commander and the CASA Registrar – Civil Register of Aircraft. DASA will send relevant aircraft identification information to Airservices Australia.

Removal of aircraft from the Defence Register

(r) A MAO or SPO must apply to DASA to remove an aircraft from the Defence Register. The application must contain the following:

1. the reason the aircraft is being removed from the register
2. confirmation that Defence Registration markings have been removed[2]
3. reference to the approved aircraft disposal plans or agreement
4. where applicable, details for the subsequent owner and registrar.

Following receipt of an application to remove aircraft from the Defence Register, DASA will review the application. If the application is complete, DASA will annotate the Defence Register with removal. Following de-registration, DASA will send a letter to the applicant, relevant MAO-AM, Environmental Commander and CASA Registrar – Civil Register to confirm aircraft removal from the Defence Register.

Superseded

Introduction

(a) Statements of Operating Intent and Usage (SOIU) must effectively describe the intended roles, usage and operating environment for a particular Defence aircraft type. This chapter expands on multiple DASR policy areas to present coherent guidance to Capability Managers (CM), Military Air Operators (MAO) and Project Offices (PO) on producing SOIUs.

(b) The SOIU requirements for an aircraft are derived from a series of capability requirements documents. The SOIU provides the broad operating parameters within which the aircraft type can safely operate. The SOIU must have sufficient detail to support identification of system requirements for a Defence aircraft type under acquisition or modification via a Major Change to Type Design. Accordingly, the SOIU is a key document in developing the Type Certification Basis (TCB) for new Defence aircraft or Major Changes to Type Design. In addition, the SOIU defines the intended scope of employment of an aircraft by a Military Air Operator (MAO) during flight operations.

Purpose

(c) This chapter describes the lifecycle of an SOIU for Defence certified aircraft (including certified UAS). Development of an SOIU is not mandatory for a Non-Defence Registered Aircraft (NDRA), but may assist a MAO to establish the operational context of their intended NDRA operations to assist with identification of any additional safety controls required in order to eliminate or minimise risks SFARP. This chapter describes the relationship between the SOIU and other key project documents and DASR authorisations. For non-certified UAS refer to DASPMAN Volume 3 Part 2 Chapter 3.

SOIU Relationship to Capability Strategy, Plans and Policy

(d) The SOIU synthesises the capability requirements into intended functional, enabling and sustainment requirements for a Defence aircraft system. Capability requirements may stem from Defence strategic policy (such as the Defence Strategic Review), Service capability plans/ strategies, and aircraft platform Operations Concept Documents (OCDs) and Capability Realisation Plans (CRPs). They may include interoperability, force generation and preparedness outcomes. Thus, the SOIU is subordinate to these capability documents and (together with the Integrated Program Management Plan (IPMP)) establishes the concept of operations and system level requirements to support safe introduction into service (and subsequent sustainment) of an aircraft type. In turn, the SOIU plays a foundational role within the system of DASR authorisations for an aircraft platform. Figure 1 shows the synthesis of platform capability requirements into the SOIU. A depiction of the DASR artefacts that are dependent on the SOIU is contained at DASPMAN Vol 3 ASAMP Chapter N Annex A.

Superseded

Figure 1: Capability Requirement Inputs to SOIU Development

DASR Requirements

(e) The SOIU enables identification of aviation system requirements that underpin Initial Airworthiness certification activities and Flight Operations authorisations regulated under DASR. The following DASR, associated Guidance Material (GM) and Acceptable Means of Compliance (AMC) applicable to this chapter are:

1. DASR ARO.50
2. DASR 21.A.15
3. DASR 21.A.17
4. DASR ARO.100
5. DASR ORO.05
6. DASR ORO.10
7. DASR UAS.20 (a)

Uses of the SOIU by various stakeholders

(f) Due to the prevalence of the SOIU in multiple DASR policy areas, different stakeholders use the SOIU for differing purposes. A PO (or Military Type Certificate Holder (MTCH)) uses an initial SOIU to determine an appropriate Certification Basis for a Type. The initial SOIU also documents the intended aircraft usage spectrum, which underpins the aircraft and engine structural certification requirements. MAO use initial SOIU to inform the intended bounds of aircraft operations. This supports a MAO in establishing a Flying Management System (FMS) for an Aircraft Type. In sustainment, the SOIU is used to communicate how the MAO-AM is currently operating, and how they intend to operate the platform in the future. As a result, variation of the SOIU will have an impact across multiple stakeholders and previously issued DASR authorisations.

SOIU Lifecycle

(g) The SOIU is subject to regular variation, due to changes in intended aircraft capability, usage or operating environment. Amendment of the SOIU triggers a cascade of stakeholder actions to implement revised capability and seek a range of DASR authorisations. Figure 2 depicts the SOIU lifecycle.

Superseded

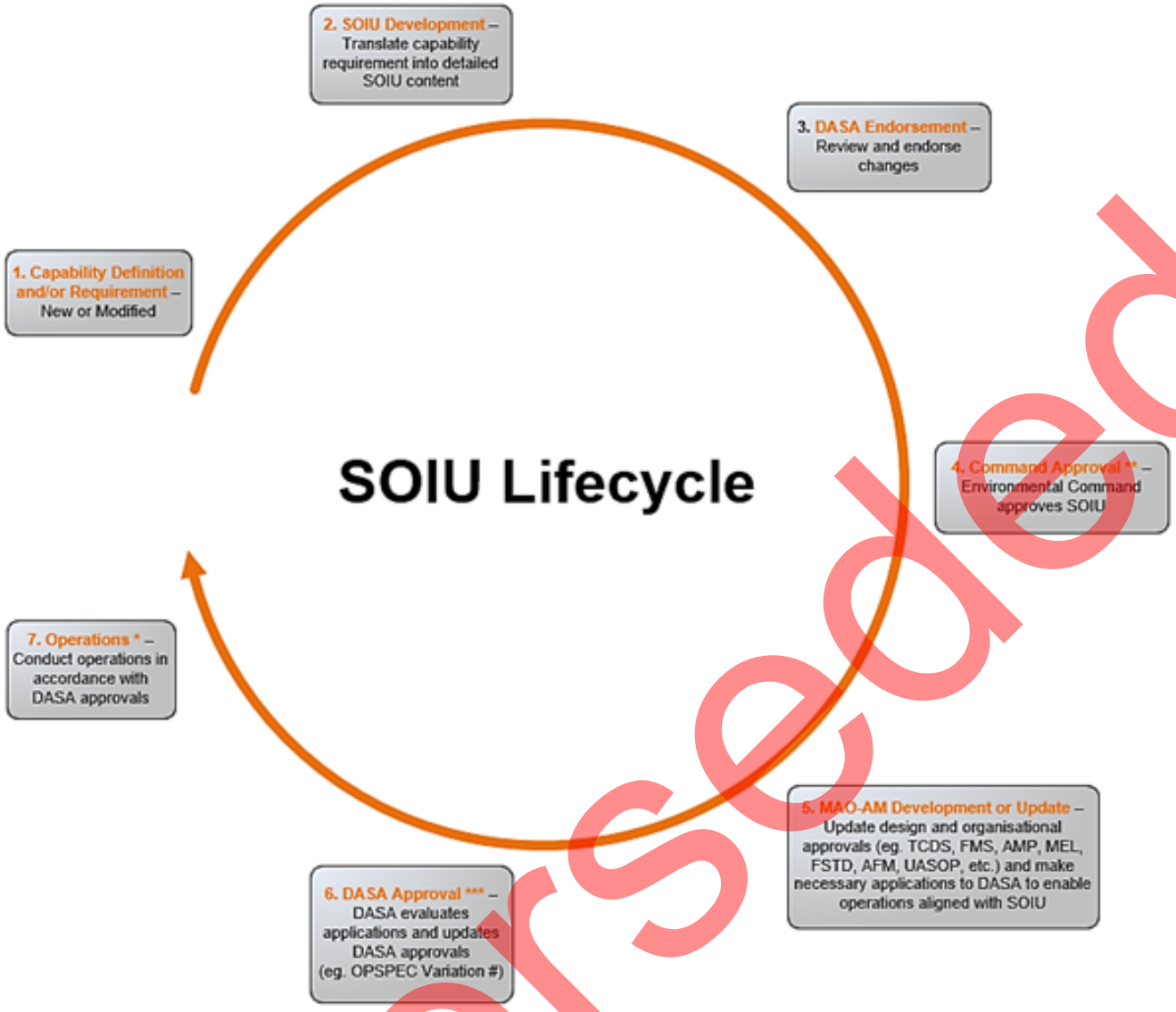


Figure 2: Depiction of the SOIU Lifecycle within DASR

(h) **Step 1 – Capability Definition and/or requirement.** The decision of when to develop an initial SOIU for Defence aircraft or capability may vary across the One Defence Capability System (ODCS) (formerly known as the Capability Life Cycle (CLC)) dependent on the scope and complexity of the project. Usually, development of an initial SOIU occurs post Gate 0, to support the risk mitigation and requirements setting phase of the ODCS. At the very latest, an approved SOIU must be in place to support commencement of acquisition activities (Investment Committee Gate 2 decision). SOIU development is one of the first planning milestones within an Aviation Safety Acquisition Management Plan (ASAMP). Following Introduction Into Service (IIS), emerging capability needs may necessitate variation of the SOIU, if they substantially alter the intended aircraft role, usage or operating environment of the subject aircraft.

(i) **Step 2 – SOIU Development.** The acquisition PO initially develops the SOIU as a joint operational and technical document. At this stage, the SOIU must have sufficient information to inform type certification activities and support identification of anticipated organisational approval and authorisation requirements. The MAO is responsible for in-service management of the SOIU, supported by the Continuing Airworthiness Management Organisation (CAMO) and MTCH (or delegate). The MTCH should ensure that the proposed SOIU is compatible with the Type Certification Basis.

Superseded

(j) There should be sufficient detail in an SOIU to articulate intended aircraft system roles, tasks, functional requirements, operating environments and anticipated aircraft usage. DASR ARO.50 does not mandate further detailed SOIU content requirements. DASA has developed an SOIU template (on the DASA website) as per DASR ARO.50.a (GM), based upon observed regulated community best practice. Further guidance on suggested SOIU content is in paragraph 16.

(k) **Step 3 – DASA Endorsement.** DASR ARO.50 requires that DASA endorse SOIU for Defence registered aircraft. DASA endorsement will be scaled based on program maturity and recognising that further maturation of the SOIU will occur during early phases of acquisition. All applications for DASA endorsement of an SOIU need PD/MTCH and operator evidentiary statements to confirm the engagement of relevant stakeholders during the development of the SOIU. DASA endorses the SOIU as an appropriate input to Initial Airworthiness approvals. In providing endorsement of the SOIU, DASA assures the MAO arrangements underpinning the MAOC Operations Compliance Statement (OCS) are consistent with the SOIU scope of intended current operations. This endorsement does not approve any role or usage stated within the SOIU. Where necessary, DASA staff will identify caveats to endorsement, which may include Specific Limitations against the affected aircraft type within the MAOC OpSpec. Particularly, staff from each of the DASA Directorates (Initial Airworthiness, Continuing Airworthiness, Aviation Engineering and Aviation Operations) will assure the SOIU is sufficiently detailed to:

1. establish and maintain the Type Design of the aircraft
2. ascertain whether or not any changes to the CRE alter the validity of the MAOC OpSpec
3. ascertain whether any Human Factors/Human Machine Interface (HF/HMI) requirements, performance and handling qualities impacts have been identified
4. ascertain whether the SOIU (mainly Flight Profiles, Mission Mix and Rate of Effort) provide sufficient detail to manage aircraft and propulsion system structural life-limits and management.

(l) **Step 4 – Command Approval.** The Environmental Commander (COMAUSFLT/ COMD AVNCOMD/ ACAUST) approves the SOIU for their respective services, following endorsement by the Defence Aviation Authority's airworthiness delegate (DG DASA). SOIU approval represents:

1. confirmation that the SOIU meets capability requirements as laid out in platform Operational Concept Documents and Joint / Service Capability Strategies
2. approval of the intended scope of aircraft operations and environment
3. commitment of resourcing to meet intended ROE (and force generation requirements)
4. part of the direction for the MAO and MTCH to proceed with developing applications for necessary changes to DASA organisational approvals and authorisations.

(m) **Step 5 – MAO-AM Development or Update.** Upon receipt of an approved SOIU, the MAO (supported by the MTCH, CAMO and PO) should undertake a program of work to develop submissions to DASA for Type Certification, Organisational Approvals and other required DASA Authorisations that will underpin implementation of the SOIU intent. These submissions are ensure actions as shown at DASPMAN Vol 3 Chap 6.2.1 Annex A. For initial SOIU (or major changes in capability), this will likely involve development of planning documentation such as

Superseded

the Aviation Safety Acquisition Management Plan (ASAMP), Certification Program Plan (CPP) and Organisational Approvals and Authorisations Plan (OAAP) (if not already developed at Step 1). SOIU variations involving Major Changes to Type Design will follow the Type Certification process under DASR 21.A.17. Concurrently, the MAO will develop updates to Orders, Instructions and Publications (OIP), establish training, and pursue all other necessary changes in order to support variation of the MAO OCS per DASR ARO.100. This step will culminate in the MAO application to the Authority for issue of (or variation to) a MAOC OpSpec commensurate with the new or modified SOIU (including the SOIU version number and approval date), citing evidence of changes underpinning the revised MAOC OCS.

(n) **Step 6 – DASA Approval.** DASA directorates provide independent assurance to support the issue of changes to Type Design and DASA Authorisations. DASA bases these activities on objective evidence accompanying submissions. DASA only considers an SOIU authoritative when the MAOC OpSpec reflects the authorised version.

(o) **Step 7 – Operations.** Per DASR ARO.100, ORO.05, and ORO.10, the intended scope of operations are within the SOIU and authorised by the MAOC OpSpec. For an aircraft system in being there will always be an authorised SOIU annotated on the MAOC OpSpec Type Annex. Other draft SOIU variations may be in development and progressing along the SOIU lifecycle.

SOIU Content Guidance

(p) The MAO/PO routinely updates the SOIU to distinguish between the intended scope of current operations from potential future capabilities. DASA has developed an SOIU template based upon observed best practice in the regulated community. The following SOIU topics are applicable to all new or modified aircraft types:

1. **Description of Aircraft Roles.** Describe the aircraft role in terms of the predominant operations the aircraft will undertake. This is usually in terms of the operational effect associated with conduct of the role, such as Offensive Counter Air, Anti-submarine Warfare or Air Logistics Support. An aircraft may undertake several different roles. The level of detail in the description for each role must be commensurate with the need to define those roles for which the aircraft is authorised and inform the definition of associated tasks, flight profiles and operating environment. While the role of the aircraft is a sub-element and intrinsic attribute of capability, the MAO/PO should not include the capability objectives that the aircraft supports.

2. **Description of Aircraft Tasks.** Aircraft tasks are subordinate elements (or discrete activities) that are necessary in order to fulfil an aircraft role. These can relate directly to the conduct of operations or considered as force enabling tasks. Examples of role related tasks for an aircraft might include Humanitarian Aid and Disaster Relief, Aerial Delivery, Search and Rescue or Passenger Transport. Enabling tasks may include Aircraft Initial and Conversion Training, Flight Test activities, Flypast and Flying Displays or Air to Air Refuelling. Task descriptions should discuss particular aircraft configuration requirements (such as enabling role or mission equipment) or intended operating environment factors (such as for embarked helicopter operations and sustainment) that are unique to the conduct of the task. The formulation of flight profiles uses this detail.

3. **Flight Profiles.** Depending on the number of intended tasks, Flight profiles may be included in the main body of the SOIU or as annexes. Flight profiles should have sufficient detail to establish aircraft usage monitoring programs, enable generation of training packages and development of MAO OIP. Flight profiles should be compiled

Superseded

into logical groups such as 'Common Profiles', 'Ground Attack', 'Air-to-Air', 'Aeromedical Evacuation' and similar logical groupings. There may be benefit to include a short discussion of intended aircraft configurations for each flight profile, including intended role equipment and Minimum Equipment List (MEL) impacts (if applicable). A list of suggested parameters, graphics and tabulated manoeuvre depictions to include in flight profiles is contained within the DASA SOIU template.

4. **Physical Operating Environment.** Usually, the physical operating environment is broken into the airborne physical environment and ground physical environment. The intended physical operating environment will have bearing on the aircraft limitations documented within the TCDS (and in turn the Aircraft Flight Manual) and will inform the aircraft usage monitoring, engine and structural integrity programs. A list of suggested operating environment parameters is contained within the DASA SOIU template.

5. **Functional Operating Environment.** The functional environment should describe the intended flight operation considerations associated with airspace access regulations (e.g. Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM)), operations in electromagnetic (EM) and threat environments, or where compliance provides desired safety enhancements for certain niche activities (e.g. frequent operations close to the ground or prolonged overwater). The functional environment section should also articulate the intended applicability of Specific Purpose Approvals under DASR SPA. For items that are potentially classified above OFFICIAL: Sensitive, a reference to the applicable document that contains the required information is appropriate.

6. **Intended Rate of Effort and Planned Withdrawal Date.** The intended rate of effort and planned withdrawal date should align with ADF capability strategies and the aircraft's OCD.

7. **Consideration of ADF unique policy and procedural impacts.** There may be ADF policies and procedures (eg Aviation Safety Design Requirements Manual), or Australian legislative requirements (eg Work Health and Safety Act 2011) that could affect Defence aircraft design, type certification or intended operations. This section of the SOIU should capture the unique Australian requirements to inform Type Certification requirement setting or the need for MAOC OpSpec Specific Limitations. Therefore, this section should describe any unique ADF policy and procedures that could influence the Defence aircraft operations, as well as identify any Australian legislation that must be complied with that could affect the aircraft design or operations.

8. **Clearly segregated discussion of anticipated future capabilities or changes.** The anticipated future capabilities or changes section is to segregate any anticipated change in the aircraft Configuration, Role and Environment (CRE), which deviates from the stated intent of current operations in the main body of the SOIU. This segregation is imperative to understand the approved scope of current aircraft operations implemented via the TCB and MAOC OpSpec and for the MAO to maintain compliance with DASR ORO.05 and ORO.10. This definition of future intended capabilities or changes may be used to support requirement setting activities.

(q) **SOIU Terminology.** As the SOIU defines an intent, the drafter should utilise words like 'intends', 'plans', 'anticipates' and 'expects' in preference to words like 'approved', 'capable', and 'certified'. This is to clarify that the document is a statement of intent only and with

Superseded

implementation recommendations. The authoritative documents that limit aircraft operations are comprised of the Type Certificate Data Sheet (TCDS) (for aircraft limitations and environmental limitations) and the MAOC OpSpec (for task related Specific Approvals and Limitations).

Superseded

6.1.2. Acquisition of (Crewed) Defence Registered Aircraft

6.1 Introduction of New Defence Aircraft Capabilities

6.1.1 Introduction

Background

6.1.1.1 Defence periodically adds aircraft to its inventory to meet a capability need. The aircraft may be purchased or leased, crewed or uncrewed, Defence or civil registered. An essential prerequisite for Defence operation of a new aircraft, regardless of the acquisition arrangement, is for Defence to confirm that it is safe for flight. This encompasses the safety of aircraft occupants, other airspace users, and overflown people and facilities.

6.1.1.2 The acquisition process for a new aircraft begins during the capability development phase of the life cycle, where operational requirements are defined and potential solutions investigated. The Aviation Safety management process commences concurrently with the acquisition process, and remains inextricably linked. Decisions made early in the acquisition process can have an enduring effect on Aviation Safety.

6.1.1.3 For a Defence aircraft to be safe for flight, the aircraft to be appropriately designed, constructed, maintained and operated, as explained in DASP Manual Volume 3 Chapter 3, The Defence Aviation Safety Program. It is the responsibility of aircraft acquisition organisations in Defence, relevant in-service organisations and Defence industry partners, to ensure a Defence aircraft is safe for flight, both from the initial design and throughout its Defence lifecycle. In turn, the relevant Aviation Safety authorities need to gain assurance that the aircraft is safe for flight. If suitably assured, the Aviation Safety authorities can issue a range of 'authorisations', usually in the form of certificates, permits, approvals or licenses.

Purpose

6.1.1.4 This series of chapters aims to guide Defence aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the aircraft acquisition process.

6.1.1.5 This first chapter provides a general introduction to acquiring new Defence aircraft, including registration requirements, Aviation Safety responsibilities, engagement with Aviation Safety authorities and other common concepts.

Applicability

6.1.1.6 This chapter is applicable to the acquisition (whether through purchase, lease or other arrangement) of the following Defence aircraft:

1. Defence registered crewed aircraft
2. Non-Defence registered crewed aircraft (short term)
3. Defence registered certified uncrewed aircraft systems (UAS)

Superseded

6.1.1.7 While the concepts in this chapter are also broadly applicable to Open and Specific category (ie non-certified) UAS, the regulatory approaches for these UAS are substantially different to certified aircraft, so DASP Manual Volume 3 Chapter 10, Uncrewed Aircraft Systems, separately covers their acquisition.

Structure

6.1.1.8 This chapter will provide context for the next four chapters, which will individually cover the three different arrangements for Defence aircraft acquisitions listed in paragraph 6, and as shown in Figure 1.

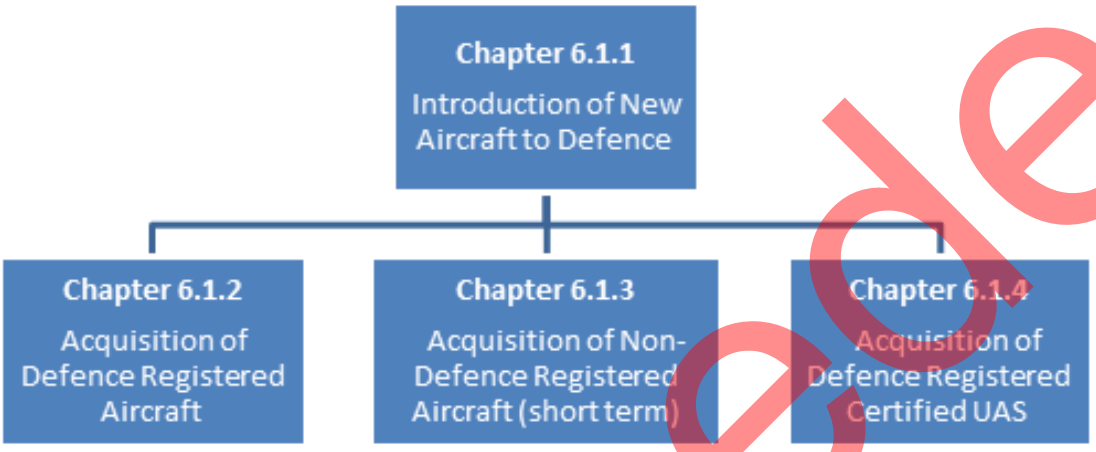


Figure 1: Chapter 6.1 structure

6.1.1.9 This chapter will also provide content that is common to the next four chapters, to avoid duplication.

Aircraft Registration

6.1.1.10 All Defence aircraft, apart from some non-certified UAS, must be included on the Register of a military or civil aviation authority. DASR separates these registrations into two categories; Defence registered aircraft and non-Defence registered aircraft. The latter are almost universally regulated by CASA. While other registrations are occasionally employed, they are always transitory arrangements[1].

6.1.1.11 A Defence registered aircraft is subject to Defence Aviation Safety Regulations (DASR) and DASA safety assurance oversight. An Australian civil registered aircraft, on the other hand, is subject to Civil Aviation Safety Regulations (CASR) and CASA safety assurance oversight as well as some limited DASA oversight.

6.1.1.12 When Defence is procuring an aircraft type that is also used under the civil regulatory framework, an important decision by the Capability Manager, required early in the acquisition process, is to determine whether the Defence aircraft will be Defence registered or civil[2] registered. This registration can have an enduring effect on Defence aviation capability, as summarised below:

1. **Defence registration.** Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR, which make specific allowance for:

   i. uniquely military roles, including weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting

Superseded

hazardous materials and dangerous goods etc — types of operations that may be heavily restricted or unsupportable under civil regulatory requirements

ii. flexibility in the approach to achieving compliance with the DASR

iii. the application of risk management where DASR compliance cannot be shown, provided a credible and defensible level of aviation safety performance is achieved

iv. Commanders to deviate from requirements (2) and (3) above in the event of compelling operational imperatives or emergencies.

DASA is experienced in regulating for the unique military operational context. Consequently, DASA is well-placed to advise Commanders on military aviation safety issues and to provide tailored independent safety assurance of military organisations and products.

2. **Civil registration.** Civil registration can initially be attractive to Capability Managers and acquisition organisations due to the simplicity of contractual and ongoing management, and potential faster introduction of the aircraft into service. However civil registration should only be considered for short term arrangements, or where an aircraft will not be considered a continuous 'State' aircraft. Complicating factors include that:

i. it can bind Defence to civil aviation safety regulations for design, maintenance and operation, and these regulations have not been customised to the unique military aviation context

ii. there may be a lack of risk-managed operational flexibility, which is the hallmark of Defence's aviation safety regulations

iii. it can bind Defence to the potential inflexibilities of the civil regulator

iv. there may be adverse diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas.

6.1.1.13 Where a Capability Manager is considering civil registration for a temporary Defence aircraft, DASA should be engaged at the earliest practicable opportunity for consultation. Annex A presents a list of issues that should be explored during this engagement, to assist the Capability Manager in making an informed decision on Defence registration versus civil registration.

6.1.1.14 Annex B presents guidance on the structure and administration of the Defence Register.

Aviation Safety Responsibilities

6.1.1.15 DASP Manual Volume 1 states that aviation safety is a command responsibility, so commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.1.16 The responsibility for ensuring (ie making sure) a new Defence aircraft is safe for flight falls directly on the Defence acquisition organisations and the relevant in-service support organisations. This includes, amongst other things, ensuring:

1. the aircraft design is safe for flight in the intended role and operating environment (ie aircraft design and certification)

Superseded

2. the physical aircraft standard of construction meets that design (ie aircraft production)

3. arrangements are in place to ensure the design remains safe (ie continued airworthiness)

4. arrangements are in place to ensure the aircraft remains in a condition for safe operation (ie continuing airworthiness)

5. arrangements are in place to design future changes and repairs (ie aircraft design)

6. operators are able to safely operate the aircraft (ie flight operations).

6.1.1.17 The role of DASA, on the other hand, is to gain assurance that the above elements have been executed effectively.

Aviation safety authorisations

6.1.1.18 When assured of safety, the relevant military or civil aviation safety authority (whether DASA or CASA) may issue a range of authorisations, often in the form of certificates, permits, approvals or licenses. For Defence registered aircraft, the list of authorisations is expansive, potentially comprising up to 12 different types of organisational, product and personnel authorisations. For civil registered aircraft, CASA will issue the civil equivalents to some or many of these 12 authorisations. Chapters 6.1.2 to 6.1.5 explore the Aviation Safety authorisations that may be issued by DASA and CASA for each acquisition category.

6.1.1.19 While DASA does not issue authorisations for civil registered aircraft, DASA may require that the aircraft are included within the scope of the Military Air Operator (MAO), issue a relevant Operations Specification (OpSpec) and conduct limited safety assurance oversight.

6.1.1.20 **Planning and coordination.** Aviation Safety authorisations issued by DASA or CASA are a major milestone in the aircraft acquisition process. Establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with the appropriate Aviation Safety authority (DASA for Defence registered aircraft, and both CASA and DASA for civil registered aircraft) is therefore in the best interests of all parties.

6.1.1.21 Engagement should ideally commence as soon as the Defence acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[3]. Engagement should be well advanced before Defence publishes any tender documents (eg Requests for Tender, Foreign Military Sales requests, etc) that may later affect an authorisation.

6.1.1.22. For civil registered aircraft, CASA will provide guidance on how to achieve the civil authorisations that will be required. DASA will do likewise for the new OpSpec, if one is to be published. This development of this DASA authorisation is far from a trivial endeavour. Not only does it cover the flying management of the MAO and other operational systems for the new aircraft, it also assesses whether the entire aviation safety construct (inclusive of all CASA authorisations) is likely to support safe Defence aviation.

6.1.1.23 For Defence registered aircraft, DASA will provide guidance on how to achieve the required DASA authorisations. Some additional guidance is available through DASA-sponsored courses and website resources.

Superseded

6.1.1.24 Chapters 6.1.2 to 6.1.4 provide tailored guidance on how engage with the relevant Aviation Safety authorities, since this varies widely between civil and Defence registered aircraft, and crewed and uncrewed aircraft.

6.1.1.25 **Documented agreements.** DASRs do not mandate any formal plans or agreements for achieving DASA authorisations. However, it is a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage Aviation Safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.1.26 For both Defence and civil registered aircraft, DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies. It describes, amongst other things, the overarching acquisition strategy in the context of Aviation Safety and brings together the planned outcomes of the operational, technical, logistical and safety management activities.

6.1.1.27 The ASAMP should be drafted after the acquisition strategy solidifies, nominally following government acquisition approval, but before RFTs (or equivalent) are released. While ASAMPs have previously been drafted before initial contact with DASA has been made, this is rarely an efficient approach. The ideal time to draft the ASAMP is soon after the initial meeting with DASA, given that meeting will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since this is the stage where the scope of most authorisations should be clear.

6.1.1.28 Chapters 6.1.2 to 6.1.5 provide guidance on the production of ASAMPs, tailored to the particular acquisition arrangement. ASAMP content varies widely between civil and Defence registered aircraft, with the latter including plans for achieving up to 12 different DASA authorisations. While the differences between crewed and uncrewed aircraft ASAMPs are less significant, the latter will focus on the unique challenges of separating the crew from the aircraft and the additional transitional authorisations that may be available for certified UAS.

Common Concepts

6.1.1.29 The next four chapters are dedicated to the four acquisition arrangements listed at Paragraph 6.1.1.6. To avoid duplication in those chapters, the remainder of this chapter will introduce several concepts that are likely to be common to each acquisition arrangement.

Recognition

6.1.1.30 Aviation Safety authority may acknowledge that products, services and data received from another Aviation Safety authority and the respective system they oversight are compatible within their own Aviation Safety framework. This concept, known as ‘recognition’, is extensively employed for new Defence aircraft acquisitions. Regardless of whether a new aircraft is Defence registered or not, recognition will almost certainly be applied for aircraft design and production. For non-Defence registered aircraft, recognition will also contribute to Defence’s confidence in aircraft maintenance and operation. DASP Manual Volume 3 Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

6.1.1.31 Where recognition is being considered for a certified UAS, DASA advice should be sought. Certified UAS are not yet commonplace, so the competence and capability of international Aviation Safety authorities in regulating and oversighting certified UAS is still evolving.

Superseded

Statement of Operating Intent and Usage (SOIU)

6.1.1.32 DASRs require all Defence registered aircraft and certified UAS (and certain other UAS when directed by the Authority) to have a Statement of Operating Intent (SOIU) that has been approved by the relevant Environmental Commander and DASA. The SOIU describes the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type.

6.1.1.33 Development of an SOIU is not mandatory for a non-Defence registered aircraft, but may assist MAOs with establishing the operational context of their intended operations, to assist with identification of any additional safety controls required to provide an equivalent level of safety to that of Defence registered aircraft.

6.1.1.34 Annex C presents further information and development guidance for SOIUs.

Independent Review of Aviation Safety

6.1.1.35 DASP Manual Volume 3 Chapter 6, Independent Review of Aviation Safety, provides information on the scope and role of Airworthiness Boards (AwBs) within the framework of capability acquisition.

6.1.1.36 Historically, AwBs were identified as a 'gate' for issuance of some DASA authorisations. The contemporary role of the AwB in the acquisition process is to complement the role of the regulator in addressing parts of the 'system of systems' that are not adequately covered through regulatory oversight activity. DASA identifies that this increases flexibility and reduces the impost on the regulated community.

6.1.1.37 Chapters 6.1.2 to 6.1.4 provide guidance on the documentation package provided to Introduction into Service (IIS) AwBs for each acquisition type. The documentation will commonly consist of:

1. the extant submissions for the relevant DASA authorisations
2. an updated ASAMP which reflects the status of the acquisition program, details and plans for outstanding activities, and impact statements and associated risk management for outstanding activities
3. checklists and other artefacts.

6.1.1.38 An AwB is commonly convened prior to the first operation of a Defence registered aircraft, due to the often complex nature of organisational, risk management and other elements. Notwithstanding the aforementioned, there is no regulatory impediment to commencing limited operations, commensurate with risk, prior to the conduct and reporting of an IIS AwB. Progressive AwBs may be convened as the organisations and operational capabilities evolve.

6.1.1.39 An IIS AwB may be less common for non-Defence registered aircraft given that Defence aircraft that are continuous 'State' aircraft should be Defence registered. When determining whether an AwB is required, the Defence AA may take into account the complexity of support arrangements, whether Defence's operations are closely aligned to civil norms, and other similar factors.

Annexes:

(a) Aircraft Registration Discussion Points

(b) Defence Registration

Superseded

(c) Statement of Operating Intent and Usage (SOIU)

6.1.2 Acquisition of (Crewed) Defence Registered Aircraft

Introduction

6.1.2.1 Aviation safety is a command and management responsibility. Commanders and senior managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.2.2 Provided the aircraft and its support and operating arrangements meet the relevant Defence Aviation Safety Regulation (DASR) requirements, DASA may issue a range of 'authorisations', in the form of certificates, permits, approvals or licenses. These authorisations provide confidence to both the Capability Manager and the Australian Government that the aircraft is capable of safe flight.

6.1.2.3 While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that additional guidance is needed if safety risks are to be efficiently and effectively eliminated or otherwise minimised so far as is reasonably practicable.

Purpose

6.1.2.4 This chapter guides Defence's aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the acquisition (whether through purchase, lease or other arrangement) of crewed aircraft that will be Defence registered.

Regulatory outcomes from the acquisition process

6.1.2.5 For a new Defence registered aircraft to operate, Command must ensure it is safe for flight. Command achieves this by ensuring the aircraft are designed, constructed, maintained and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation. In turn, if suitably assured of safety, DASA may issue a range of authorisations. Depending on the acquisition and support arrangements, this can extend to 12 different types of organisational, product and personnel authorisations, as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Military Design Organisation (MDO)
    iii. Military Production Organisation (MPO)
    iv. Approved Maintenance Organisation (AMO)
    v. Continuing Airworthiness Management Organisation (CAMO)
    vi. Maintenance Training Organisation (MTO)
    vii. Military Type Certificate Holder (MTCH) (currently an implicit authorisation)
2. product authorisations:

Superseded

i. Military Type Certificate (MTC) and associated Type Certificate Data Sheet (TCDS)

ii. Military Permit to Fly (MPTF)

iii. Aircraft Management Programme (AMP)

iv. Military Certificate of Airworthiness (CoA)

Note: *In addition, it may include a range of niche authorisations, for example a product conformity agreement, master minimum equipment list, and so on.*

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: *DASA directly authorises certain management personnel within approved organisations. However, those authorisations are considered to be part of the organisational approval process in this chapter, so they are not separately listed here.*

6.1.2.6 Figure 1 summarises the range of DASA authorisations that are usually relevant to a new aircraft acquisition, grouped according to their relevance to aircraft design, construction, maintenance or operation. The subsequent paragraphs separately explore each group.

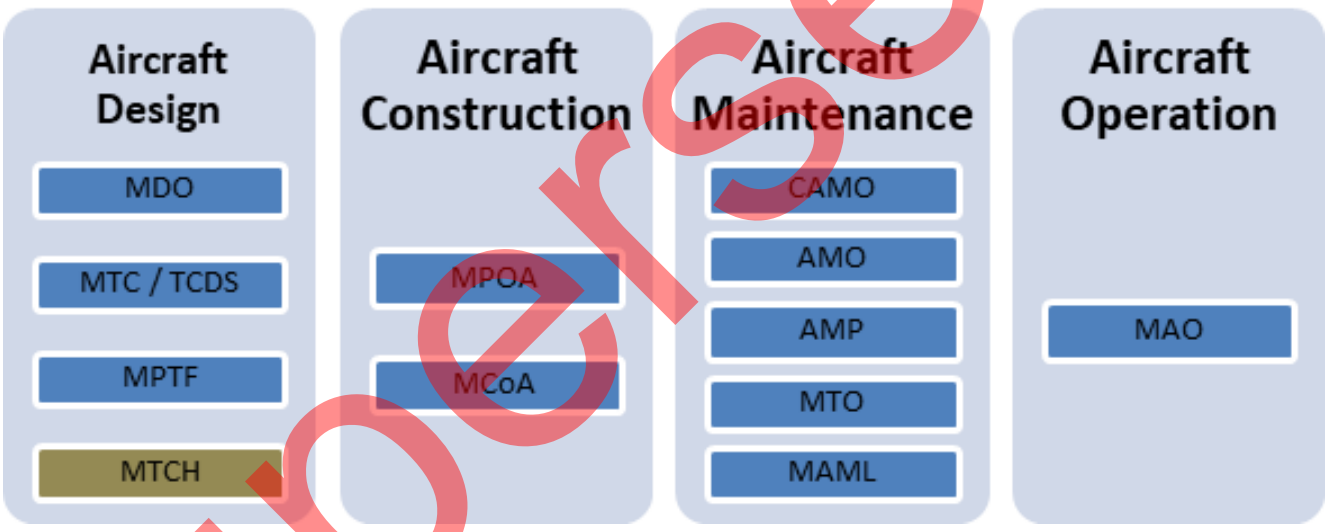


Figure 1: DASA authorisations relevant to Defence aircraft acquisitions[4]

Aircraft design (and certification)

6.1.2.7 New Defence crewed aircraft will normally be civil or military 'off-the-shelf' aircraft that are subsequently modified to meet Defence's capability requirements. Ensuring the final aircraft design is safe for flight in Defence's intended Configuration, Role and Environment (CRE) is a critical step in the acquisition process. Four separate DASA authorisations are relevant to this process, design, construction, maintenance or operation.

6.1.2.8 **Military Design Organisation (for initial aircraft design).** An organisation that has been approved by DASA to provide aircraft design services for a new Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a military or industry organisation, and may be located in Australia or overseas. MDOs are often required for the design of new Defence aircraft,

Superseded

although as explored in the next four paragraphs, this requirement can be reduced, or even eliminated, in some circumstances.

6.1.2.9 **Military Type Certificate.** The Defence type certification process is central to confirming that the aircraft design is safe for Defence's intended Configuration, Role and Configuration (CRE) for the aircraft. At its core is the Type Certification Basis (TCB), which is a DASA-agreed set of airworthiness design requirements, including an airworthiness code and other standards, and tailoring to both as required.

6.1.2.10 At its extreme, type certification requires a DASA-approved MDO to create an aircraft design that complies with the TCB, and to produce evidence that demonstrates this compliance. In turn, DASA examines the evidence on a non-exhaustive basis, and if assured of safety, issues a Military Type Certificate (MTC)[5] and associated TCDS.

6.1.2.11 There is, however, a shortcut to the above approach that is employed for most Defence aircraft acquisitions. When Defence is procuring off-the-shelf aircraft or equipment, the Applicant[6] may seek relief from the need to develop new compliance demonstration evidence, to the extent an extant certification by a recognised National or Military Aviation Authority (NAA/MAA) is relevant to Defence's CRE. This is known as 'recognition of prior certification'. In rare circumstances, DASA can certify an entire new aircraft based solely on the prior certification of another NAA/MAA.

6.1.2.12 More commonly, however, Defence aircraft acquisitions employ a combination of the above two processes. That is, recognition of prior certification is used to cover the design of the off-the-shelf aircraft, and a DASA-approved MDO designs the Defence-unique modifications and produces the requisite compliance demonstration evidence. Sometimes another NAA/MAA may agree to certify some or all of the Defence-unique modifications, which may reduce or even remove the need for a DASA-approved MDO.

6.1.2.13 **Military Type Certificate Holder.** The MTC for a new Defence aircraft is issued by DASA to the Military Type Certificate Holder (MTCH), who takes on responsibility for ensuring the 'continued airworthiness' of the design[7]. This role is normally assigned to the relevant Defence SPO, who will implement standing arrangements with other Defence organisations, industry partners, and perhaps other militaries, to support the function. Amongst other things, the MTCH organisation is responsible for implementing systems for collecting, investigating and analysing aircraft occurrences which may affect its airworthiness, and holding (or providing access to) aircraft design information.

6.1.2.14 Note that DASA does not currently issue an explicit organisational approval for MTCHs, although this may change. Instead, the proposed MTCH arrangement is evaluated by DASA as part of its deliberations on whether to issue a MTC.

6.1.2.15 **Military Permit to Fly.** It is possible for DASA to issue a MTC for a new aircraft type immediately upon its addition to the Defence Register. More likely, however, there will be a period where the aircraft is not yet ready for a MTC because, for example:

1. the aircraft design is still under development
2. compliance demonstration evidence is still being created or compiled
3. Defence's MTC will leverage off the certification of another NAA/MAA, which is yet to be finalised

Superseded

6.1.2.16 DASA can issue a Military Permit to Fly (MPTF) to a MAO[8] in advance of the MTC if satisfied the aircraft design substantially complies with its agreed TCB, the configuration of the subject aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions and for specified purposes, and any elevated risk has been justifiably retained. However, since the MPTF will usually impose (often significant) risk controls that limit the operation of the aircraft, extended operations under an MPTF are not common.

6.1.2.17 **Military Design Organisations (for in-service support).** Finally, throughout an aircraft's operational life, design changes are inevitable to remedy design defects, address obsolescence issues, design repairs, implement capability enhancements, and so on. These design changes will often be the purview of one or more DASA-approved MDOs, which are typically (but not essentially) the same as the MDOs that support the MTCH function.

6.1.2.18 Ultimately, both the MTCH and Continuing Airworthiness Management Organisation (CAMO – see below) must be able to demonstrate that sufficient design support arrangements are in place to maintain the safety of the aircraft[9], before a new aircraft is operated on the Defence Register. Depending on the aircraft acquisition contract, this design support function might initially be provided by the aircraft Original Equipment Manufacturer (OEM); if so, the in-service MDOs might not be needed immediately.

6.1.2.19 **Summary.** Summarised, the four DASA design-related authorisations that are usually relevant to aircraft acquisitions are presented in Figure 2. The MTCH is depicted in a different colour, to show that DASA does not (yet) directly issue an MTCH approval.

Figure 2: DASA authorisations related to aircraft design

6.1.2.20 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MDOs, MTCs, MPTFs and MTCHs.

Aircraft production (or construction)

6.1.2.21 A MTC focuses on the safety of an aircraft's design. It does not consider the subsequent manufacture and assembly of the design, which is the purview of aircraft production (or

Superseded

'construction' in historic Defence parlance). The two DASA authorisations relevant to new aircraft production are Military Production Organisations and Military Certificates of Airworthiness.

6.1.2.22 **Military Production Organisation.** A Military Production Organisation (MPO) is a DASA-approved organisation that can manufacture and assemble parts, appliances, aircraft, engines or propellers to approved design data[10]. In the context of a Defence aircraft acquisition, MPOs can manufacture and assemble both the baseline aircraft (often called the 'green' aircraft) and the Defence-unique modifications to the green aircraft. They may be the same organisation, or there may be multiple different MPOs.

6.1.2.23 More commonly for new aircraft, however, Defence leverages the oversight provided by a DASA-recognised NAA/MAA of certain production organisations. This can reduce, or even eliminate, the need for DASA-approved MPOs.

6.1.2.24 **Military Certificate of Airworthiness.** As noted previously, a MTC is issued for an aircraft type. A separate DASA authorisation needs to subsequently be issued for each aircraft tail, namely the Military Certificate of Airworthiness (MCoA)[11], once DASA is satisfied the produced aircraft conforms to the design covered by the MTC. Central to DASA issuance of a MCoA is evidence that each product, part or appliance conforms to the approved design data and is in condition for safe operation.

6.1.2.25 A MCoA cannot be issued prior to the MTC. Where a new Defence aircraft is to be flown under a MPTF prior to the issue of a MTC, the MPTF effectively provides the function of the MCoA. As part of the process for seeking a MPTF, an applicant will need to demonstrate that the produced aircraft does indeed conform to the currently approved design data.

6.1.2.26 **Summary.** Summarised, the two DASA production-related authorisations that are usually relevant to new aircraft acquisitions are presented in Figure 3.

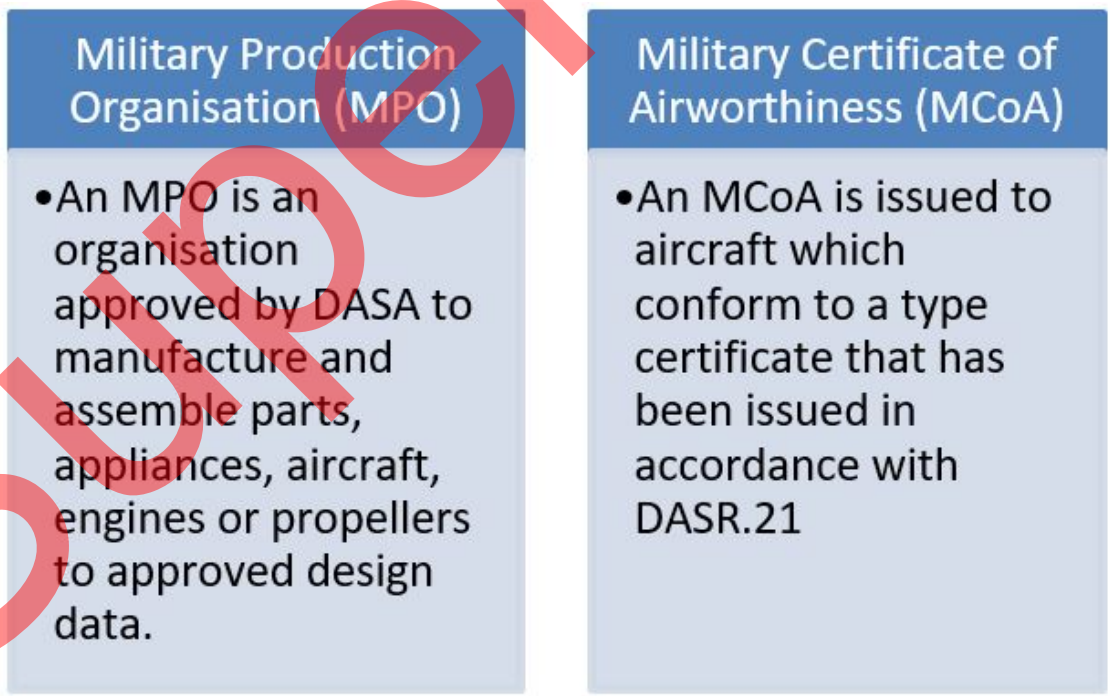


Figure 3: DASA authorisations related to production

6.1.2.27 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MPOs and MCoAs.

Superseded

Aircraft maintenance (continuing airworthiness)

6.1.2.28 While Defence has long used the colloquial term of 'aircraft maintenance' to cover airworthiness activities beyond aircraft design and production, the DASRs purposely use the more expansive term of 'continuing airworthiness'. Aircraft maintenance is any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component. Continuing airworthiness encompasses this, plus maintenance management, maintenance training and maintenance licensing. For completeness, this section will use the term 'continuing airworthiness'.

6.1.2.29 Robust continuing airworthiness arrangements must be in place prior to the operation of a new Defence aircraft. Once assured of the sufficiency of these arrangements, DASA may issue three relevant organisational approvals, namely Continuing Airworthiness Management Organisations, Approved Maintenance Organisations and Maintenance Training Organisations. DASA may also approve Aircraft Maintenance Programmes and issue Military Aircraft Maintenance Licences to eligible personnel.

6.1.2.30 **Continuing Airworthiness Management Organisation.** Continuing Airworthiness covers all processes that ensure an aircraft continues to comply with initial airworthiness requirements and supports the ongoing validity of the aircraft's MCoA. The Continuing Airworthiness Management Organisation (CAMO), while not directly responsible for actual aircraft maintenance, is responsible for engaging organisations to conduct design and maintenance services. The CAMO will:

1. engage MDO(s) for design services as required
2. engage the MTCH for any matters that impact the aircraft's type design and type certification under MTC or an individual aircraft's CoA]
3. task AMOs to maintain products (aircraft, engines and propellers), parts and appliances and
4. provide governance and oversight to organisations performing DASR M functions on its behalf.

6.1.2.31 In most cases, the acquisition of a new aircraft type will not result in the creation of a new CAMO; rather, the scope of an extant CAMO will be expanded to include the new aircraft type. The presence of a suitable CAMO is integral to DASA's approval of a new MAO, or adding an additional aircraft to an extant MAO's scope.

6.1.2.32 **Aircraft Maintenance Organisations.** DASR provides two avenues for the maintenance of an aircraft and its components. The first is a DASA-approved Approved Maintenance Organisation (AMO), and the second is 'another maintenance organisation accepted by DASA'. A combination of both is usually employed for Defence aircraft.

6.1.2.33 An AMO is an organisation approved by DASA to conduct aircraft maintenance activities. This includes all actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness. AMOs may be a military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types. New Defence aircraft may be supported by one or several AMOs.

6.1.2.34 DASR Part M makes provision for maintenance services to be consumed from other maintenance organisations that are accepted by DASA. While the regulation infers that DASA explicitly accepts each of these maintenance organisations, this is not normally the case. Rather,

Superseded

DASA will automatically accept a maintenance organisation provided it is oversighted by a NAA/MAA that is 'recognised' as competent by DASA, and provided the CAMO ensures the conditions and caveats on the relevant 'recognition certificate' are met. Recognition certificates for each NAA/MAA recognised by DASA are available on DASA's website.

6.1.2.35 Prior to operation of a new Defence aircraft, the CAMO must demonstrate that arrangements are in place to maintain the aircraft in an airworthy condition. In limited circumstances, DASA may agree to the temporary absence of some maintenance arrangements, but only where this does not affect the near-term support of the aircraft.

6.1.2.36 **Aircraft Maintenance Programme.** An Aircraft Maintenance Programme (AMP) describes the scheduled maintenance tasks, their frequency of completion, the associated maintenance procedures, and so on, necessary to preserve the airworthiness of the aircraft. For aircraft acquisition projects, an initial AMP must be approved by DASA prior to the conduct of any maintenance activities. Maintenance activities can in some cases pre-date flying operations on the Defence Register, since they include aircraft preservation and other maintenance tasks required to prepare the aircraft for operation.

6.1.2.37 **Military Aircraft Maintenance Licenses.** AMOs require some personnel to hold particular categories of Military Aircraft Maintenance Licences (MAMLs). Furthermore, in order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML requires their licence to be endorsed with the relevant aircraft type ratings. As part of the AMO approval process for a new aircraft, the AMO will need to demonstrate that its personnel hold sufficient and applicable MAMLs.

6.1.2.38 **Maintenance Training Organisation.** A Maintenance Training Organisation (MTO) conducts training and examinations for maintenance personnel as specified in DASR 66. While a new MTO would rarely be required for a new Defence aircraft, an extant MTO would need to demonstrate its competence to conduct the type/task training and assessments for the new aircraft.

6.1.2.39 **Summary.** Summarised, the five DASA authorisations related to continuing airworthiness (of which maintenance is a component) of Defence aircraft acquisitions are presented in Figure 4.

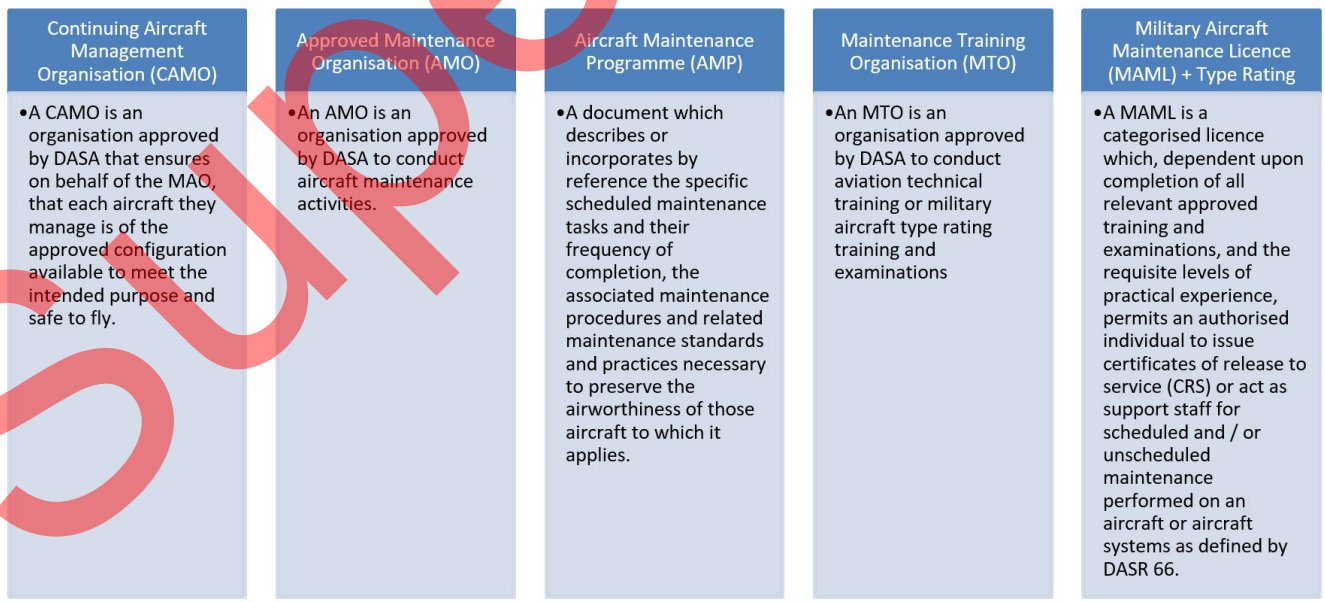


Figure 4: DASA continuing airworthiness-related authorisations

Superseded

6.1.2.40 DASPMAN Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into CAMOs, AMOs, AMPs, MTOs and MAMLs.

Aircraft operation

6.1.2.41 A Military Air Operator Certificate (MAOC) is the principal authorisation granted by DASA to conduct military air activities. Each aircraft type operated by the MAO is authorised by a separate DASA-issued Operations Specification (OpSpec) annex. The OpSpec annex details, amongst other things, key positions of the MAO, operating provisions, roles and tasks, specific approvals, and any limitations or conditions imposed by DASA.

6.1.2.42 The relevant OpSpec annex is required before first flight of the aircraft by the MAO[12]. DASA will issue the OpSpec annex once assured that the necessary Fundamental Inputs to Capability (FIC) elements, as well as quality and safety management systems, are in place to support intended operations.

6.1.2.43 Preparing a MAO to take on a new Defence aircraft can be a substantial undertaking. Amongst other things, for the new aircraft type the MAO will need to:

1. define the operating intent and usage for the aircraft through an approved Statement of Operating Intent and Usage (SOIU)
2. ensure arrangements are in place for maintaining the airworthiness of the aircraft through a CAMO and AMOs
3. implement the multitude of systems needed to manage Operations personnel and Air operations
4. produce/accept Orders, Instructions and Publications (OIP)[13]
5. establish an Aviation Safety Management System (ASMS).

6.1.2.44 Implementing these requirements, even for an existing MAO, is likely to require considerable planning and effort. Consequently, DASA recognises that a graduated capability growth plan for operational authorisations may be required. The Aviation Safety Acquisition Management Plan (ASAMP - see Chapter 6.1.1 and later in this chapter) is a suitable repository for reflecting the status of the acquisition program, including details of work completed, re-programing of remaining activities and risk management for the incomplete tasks.

6.1.2.45 **Summary.** Summarised, the singe DASA flight operations-related authorisation relevant to aircraft acquisitions is presented in Figure 5.

Superseded

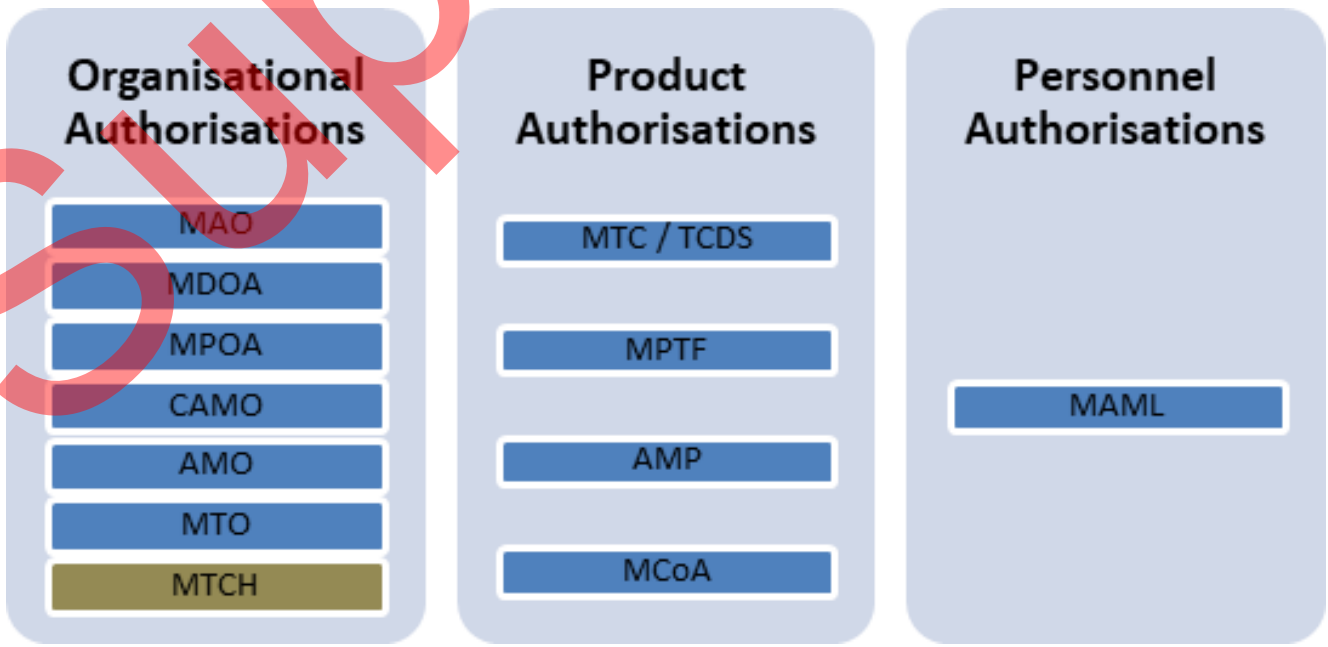
Figure 5: DASA authorisations related to aircraft operations

6.1.2.46 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MAOs.

Summary

6.1.2.47 This section has presented an overview of the DASA authorisations that may be relevant to new aircraft design, construction, maintenance and operation. Depending on the acquisition arrangements and the aircraft role, some authorisations might not be required.

6.1.2.48 The diagram at the start of this section (Figure 1) summarised all of the possible DASA authorisations according to whether they were relevant to new aircraft design, construction, maintenance or operation. However, another way of grouping them is according to whether they are organisational, product or personnel authorisations, as shown in Figure 6.



Superseded

Figure 6: DASA authorisations for new aircraft (grouped by category)

6.1.2.49 This grouping has the advantage that the eight organisational authorisations all use substantially the same processes for application and approval, and the three product authorisations have strong synergies. Consequently, for simplicity, this grouping will be used in the next section.

Processes, Plans and DASA Interaction

6.1.2.50 The previous section presented an overview of the DASA authorisations that may be relevant to new aircraft acquisitions. While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that achieving the authorisations can be a complex and protracted journey. This section guides the reader though the process of achieving these DASA authorisations.

6.1.2.51 Figure 7 shows how the various DASA authorisations usually fit onto a project timeline. The vertical stripes present four significant milestones for introducing a new aircraft to Defence, the items above the dashed line show DASP-related project and Command activities, and the items below the line show the DASA authorisations. A time scale has purposely not been included, because this can vary enormously between aircraft acquisitions.

Superseded

Figure 7: Common project timeline for DASA authorisations

6.1.2.52 The elements below the dashed line can broadly be grouped into five activities, as shown in Figure 8. With the exception of Activity 1, the remaining activities are rarely sequential; more often than not Activities 2 and 3 are executed concurrently, and several activities may be cyclic.

Superseded

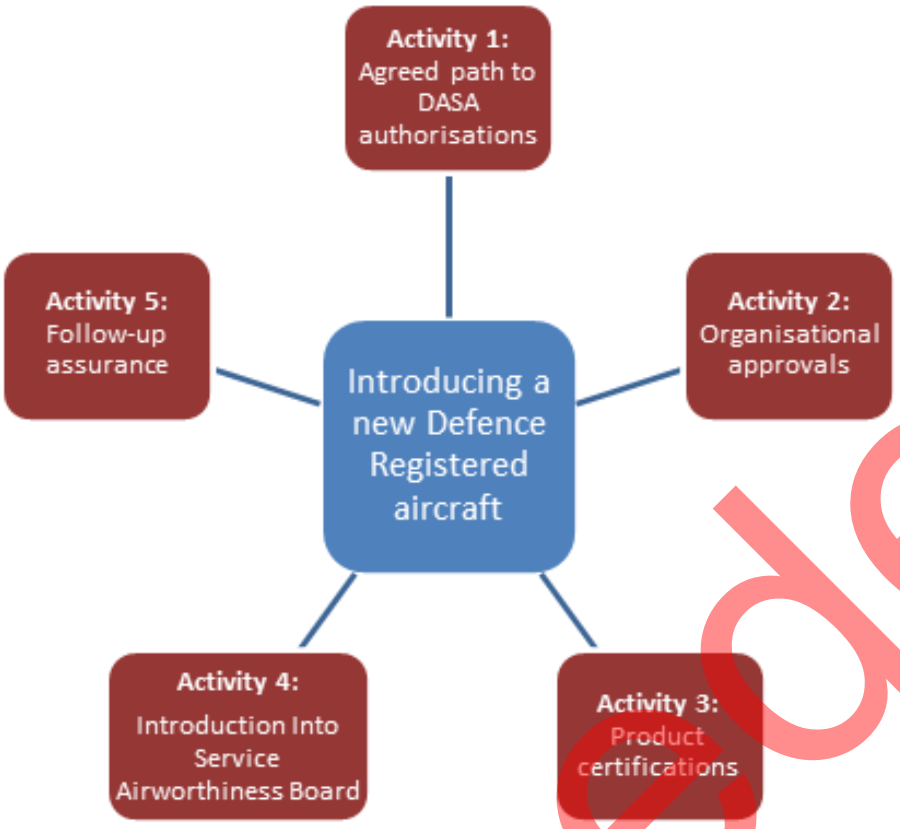


Figure 8: Activities in introducing a new Defence aircraft

6.1.2.53 Each of these five activities from Figure 8 is explored below.

Activity 1: Agreed path to authorisations

6.1.2.54 A major milestone in the aircraft acquisition process is the achievement of a range of DASA authorisations. However, establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with DASA is therefore in the best interests of all parties.

6.1.2.55 **Initial engagement.** Engagement should ideally commence as soon as Defence's acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[14]. Engagement should be well-advanced before Defence issues any tender documents (eg Requests for Tender, Foreign Military Sales Letter of Requests, etc) that may later affect an authorisation.

6.1.2.56 The initial engagement should involve DASA specialists, the Defence acquisition organisation, and capability manager representatives. If known, the Defence and industry organisations that will support the aircraft could also participate. Key outcomes will be:

1. a shared understanding of the project scope and schedule, candidate aircraft and the likely scope of Defence-unique design changes

Superseded

2. initial views on which of the seven DASA organisational approvals are likely to be needed and, for those that may not be needed, agree on the alternative means of achieving the same safety outcomes

3. initial views on how the aircraft might achieve an MTC, including how current or future certifications by DASA-recognised national or military airworthiness authorities (NAA/ MAAs) might contribute

4. initial views on whether an MPTF might be required to allow for test and other flying prior to the issue of an MTC

5. DASA should provide a management overview of each likely DASA authorisation, including: key milestones, common approval timeframes, recommended DASA collaboration, availability of training and other guidance material, and so on.

6.1.2.57 Annex A presents an expanded version of the above list, which can be used as a set of talking points for this initial engagement. Depending on the acquisition strategy, some of the details may initially be sparse. If so, further engagement should be scheduled for when the information is likely to become available, but still before releasing RFTs or equivalent documents.

6.1.2.58 **Documented agreement.** As noted in Chapter 6.1.1, DASRs do not mandate a plan or agreement for achieving DASA authorisations. It is, however, a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage aviation safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.2.59 DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between Applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies.

6.1.2.60 Annex B presents the suggested content and management arrangements for an ASAMP. Summarised, it suggests the main body of the ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistical and safety management activities. It should also describe the management of flight operations during acquisition, particularly if operations are to commence under an MPTF.

6.1.2.61 Annex B also suggests the ASAMP should include a series of annexes, with individual annexes dedicated to each DASA authorisation. Each annex could be sponsored by the relevant Applicant for the DASA authorisation, and could form an agreement between DASA and the Applicant on the path to the particular authorisation. For simple acquisitions, the annexes might directly present the information[15]. For more complex acquisitions, particularly where there are a range of Applicants for the various DASA authorisations, the annexes might merely contain a link to a planning document that is drafted and managed by the respective Applicant. Either way, the annexes should be 'modular', whereby each annex is configuration managed and approved separately to the main body of the ASAMP.

Superseded

6.1.2.62 The ASAMP should be drafted after the acquisition strategy solidifies (usually post Government approval), but before RFTs (or equivalent) are released. The ideal time to draft the ASAMP is usually soon after the initial engagement with DASA, and in fact that engagement will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since the path to most DASA authorisations should be clear.

6.1.2.63 Once contracts and agreements are signed, the main body of the ASAMP need only be updated when there is a marked change in the acquisition strategy or high-level schedule for the project. The annexes, on the other hand, will probably be updated more frequently, particularly in the earlier stages of the project as knowledge and plans evolve.

6.1.2.64 **Ongoing engagement.** DASA's experience is that three forms of engagement should be maintained throughout the project lifecycle, as follows:

1. Periodic major stakeholder engagements, expanding on the initial engagement suggested previously in this section. This should occur throughout the acquisition project lifecycle, usually when significant milestones are approaching

2. Frequent coordination and status updates between senior project management staff (commonly the CASG Project Engineering Manager, the CM Transition Team lead, etc), and DASA's operational and technical leads for the acquisition

3. Engagement as required between each of the Applicants for a DASA authorisation and the respective DASA specialist.

6.1.2.65 **DASA assistance with contract reviews.** There is no DASR requirement for DASA to be engaged in seeking offers (eg RFT or equivalent), selecting the successful tenderer, negotiating the contract, and signing the contract. However, where a contract element may one day affect a DASA authorisation, prudent DASA involvement can reduce project cost and schedule risk. Areas where DASA can contribute include:

1. Prior to RFT (or equivalent) issue:

    i. confirming the RFT requirements for organisational approvals are appropriate for aircraft acquisition and/or in-service support

    ii. confirming the RFT airworthiness design requirements (including airworthiness codes and other standards), and proposed approach to aircraft certification, present a suitable pathway to MTC

    iii. confirming the RFT aircraft production arrangements present a suitable pathway to issue of MCoA

    iv. confirming aircraft registration pathways, particularly for significant modifications to a green aircraft by a third party

Superseded

v. providing expert input to specialist aircraft design technology requirements, such as aircraft structural integrity (ASI) design and in-service management systems.

2. For RFT assessment:

i. If any of the above RFT items seek preliminary plans for DASA organisational approvals or product certifications, then DASA can participate in the assessment of those plans

ii. otherwise, while the Defence acquisition organisation will conduct the tender evaluation, DASA staff are available for on-call advice and assistance as required[16]

3. For contract negotiation: DASA staff would rarely be directly involved in contract negotiations, but are available for on-call advice and assistance as required.

4. Final contract review: DASA does not review the mature contract prior to signature, but is available for advice and assistance as required.

6.1.2.66 **Delegations.** During the project lifecycle, organisations may elect to delegate their Command responsibilities, for example the appointment of the senior operator within the project transition team to make operational decisions in relation to the project. Once notified of the delegation, DASA will treat the decisions and approvals of the delegate as if the accountable manager had issued them.

6.1.2.67 Later in the project lifecycle, usually just before MTC issue, a 'Platform DoSA' will need to be appointed by DASA. The Platform DoSA role is normally delegated to the incumbent Defence CENGR of the platform MTCH organisation, and is responsible for assurance of MTCH actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. DASP Manual Volume 3 Chapter 4.3, Delegates of the Safety Authority, provides additional information.

Activity 2: Organisational approvals

6.1.2.68 Professional aircraft design, construction, maintenance and operation organisations are cornerstone to aviation safety. Implementing the required organisations for a new aircraft, and obtaining DASA approval of each organisation, is usually a significant activity for both the Applicants and DASA. This section explores the planning, establishment and assessment of new DASA-approved organisations.

6.1.2.69 **Planning.** As noted in Activity 1, the ASAMP should include a planning annex for each organisational approval. The ASAMP should plan for the organisational approvals to be achieved well prior to their need date, which are likely to be as follows:

Superseded

1. MAO: DASA authorisation is required prior to the first operation of the aircraft by the MAO[17]. This authorisation is reflected in DASA's issue of an OpSpec annex for the new aircraft

2. MDO:

   i. (for initial aircraft design): Required prior to design changes to the green aircraft, if those changes are not to be certified by a recognised NAA/MAA

   ii. (for in-service support): Required prior to first flight on the Defence Register, unless DASA has agreed to an alternative interim support arrangement

3. MTCH: Implementation of suitable MTCH arrangements are a prerequisite for issue of an MTC. However, depending on the acquisition arrangement, some of these functions may need to be in place earlier to support the initial MPTF

4. MPO: Required prior to any aircraft production activity, unless an alternative production approval path has been agreed by DASA

5. CAMO: Required prior to first flight of the aircraft on the Defence Register

6. AMO: Required prior to first flight of the aircraft on the Defence Register[19], unless an alternative interim maintenance arrangement has been agreed by DASA. AMOs will need MAMLs in sufficient numbers to meet AMO needs, relevant to the scope of operations and numbers of aircraft

7. MTO: Agreed in consultation with DASA.

6.1.2.70 Note that while DASA agreement to the above authorisation plans is not a regulatory requirement, it is encouraged by DASA. As Figure 9 shows, the time needed to implement a new organisation and then achieve a DASA organisational approval can be substantial, so careful management is needed to minimise Defence's schedule risk.

Superseded

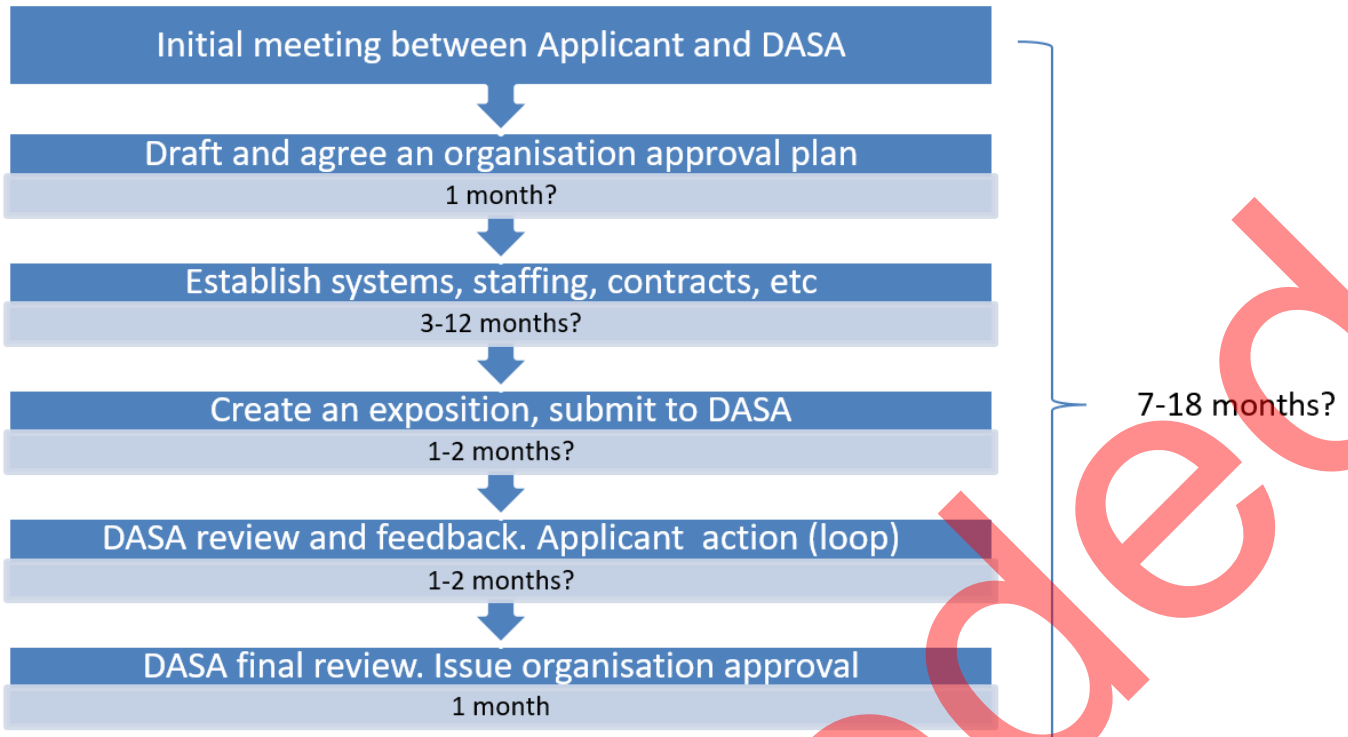


Figure 9: Timeline for DASA organisational approvals

6.1.2.71 **Establishing organisations.** DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, presents a description of each DASA organisational approval, including the key artefact(s) needed to show regulatory compliance - for example, the MDO's design organisation handbook, the AMO's Maintenance Organisation Exposition (MOE), the MAO's Operations Compliance Statement (OCS), and so on. Each of these artefacts will help guide the Applicant's efforts to establish an organisation that professionally supports Defence aviation safety, as will the Acceptable Means of Compliance (AMC) and Guidance Material (GM) accompanying the relevant DASRs. DASA-sponsored education courses and DASA website material also offer useful information.

6.1.2.72 However, Applicants must bear in mind that such guidance may be incomplete, or not entirely relevant to the local context. Consequently, DASA cannot overstate the importance of the Applicant's role in refining the organisation beyond DASR (and DASA) requirements. This might include, for example:

1. learning from other Defence organisations
2. learning from comparable civil organisations[20]
3. exploring the (often extensive) guidance material released by other NAA/MAAs[21]
4. consulting with staff and others with relevant domain expertise.

6.1.2.73 A robust and evolving Aviation Safety Management System (ASMS) is pivotal to establishing an organisation that optimises its contribution to Defence aviation safety. An ASMS utilises a systematic

Superseded

approach to managing aviation safety, including organisational structures, accountabilities, policies and procedures. An effective ASMS continuously improves an organisation's safety performance through pro-actively collecting and analysing safety data to predict, prevent and treat aviation hazards and risks. DASP Manual Volume 3 Chapter 6.2, Safety Management, provides further guidance.

6.1.2.74 **DASA assessment.** The annexes in Chapter 5.3 provide insight into DASA's approach to assessing, and ultimately approving, a new or expanded organisational approval. Most approvals follow a similar process, namely:

1. the Applicant drafts an 'Exposition' or similar document, as key evidence that their organisation has implemented the systems and processes needed to comply with the relevant DASRs

2. the applicant submits the relevant DASR Form to seek an organisational approval

3. DASA conducts an assessment of the Exposition and the documents it references, often as a desktop activity for new organisations; on occasion DASA may do an on-site assessment

4. if needed, the applicant remedies any deficiencies that preclude DASA's approval of the organisation

5. DASA issues an organisational approval, perhaps initially limited in scope

6. once the aircraft is operating and the organisation has the opportunity to exercise its approval, DASA will conduct a deeper assessment, usually including an on-site visit, placing particular emphasis on the effectiveness of the ASMS and system monitoring.

6.1.2.75 Figure 10 summarises the path through to DASA approval for the seven organisations common to new aircraft acquisitions.

Superseded

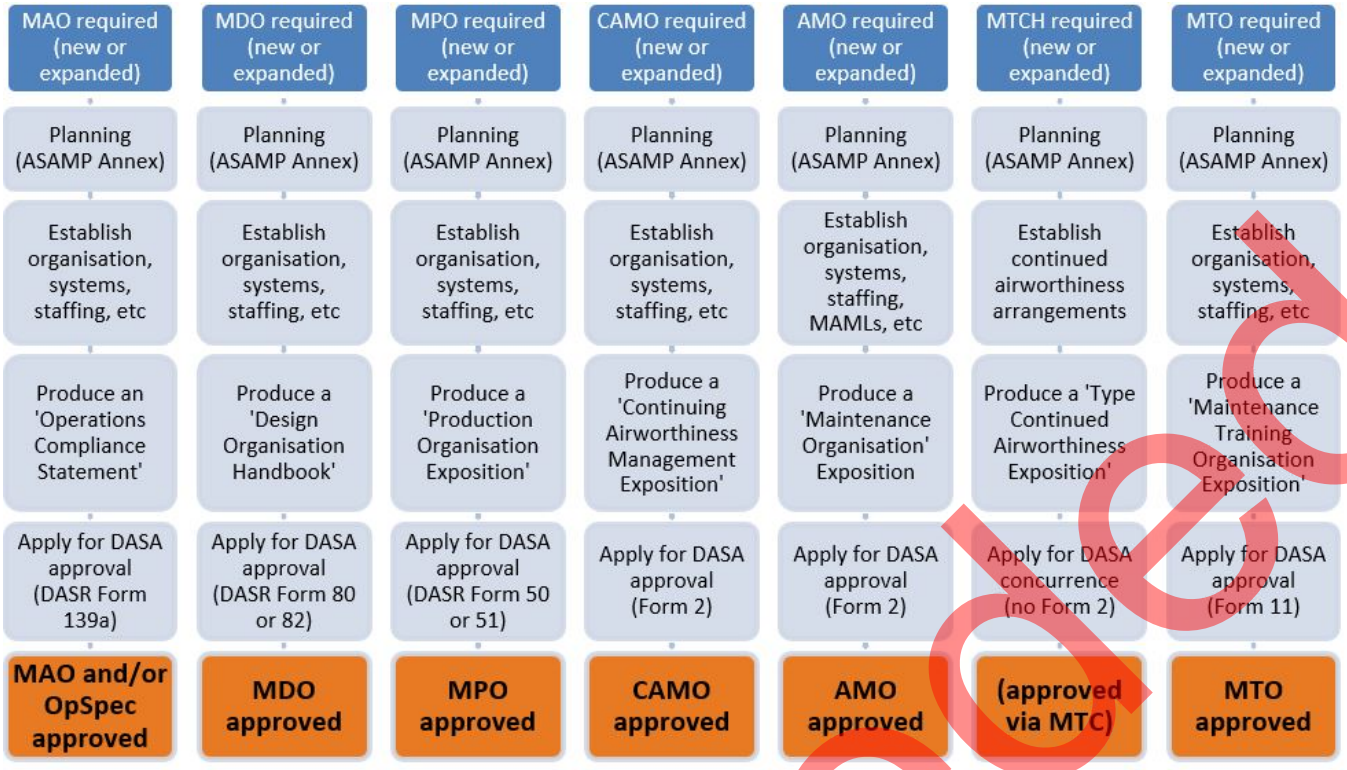


Figure 10: Path to DASA organisational approvals

Activity 3: Product authorisations

6.1.2.76 The four common product authorisations for new aircraft are the MTC, MCoA, MPTF and AMP. While an MPTF will often be issued prior to an MTC and MCoA, preparatory work on the other two will usually precede and support the issue of the MPTF. Hence, this section will consider the MPTF last.

6.1.2.77 Before exploring the four product authorisations, some brief discussion on safety risk management is warranted. Risk management is almost always a contributor to MTC and MPTF authorisations, so all stakeholders need to be conversant with Defence's 7-step risk management approach, as explained in the DASA Advisory Circular 003/2018, Risk Management in the DASP. Furthermore, DASA's experience is that this risk management is most effective when all parties robustly consult, cooperate and coordinate with each other. Critically, this must occur across organisational boundaries, and across specialisations (most notably between operators and engineers).

6.1.2.78 **MTC.** Achieving an MTC for a new aircraft is a significant milestone for an aircraft acquisition project, and one that commonly takes substantial planning and effort. While the path to an MTC is explored in DASP Manual Volume 3 Chapter 7.2, Certification, for the benefit of readers not needing that depth of information, a brief description of the process is included here.

Superseded

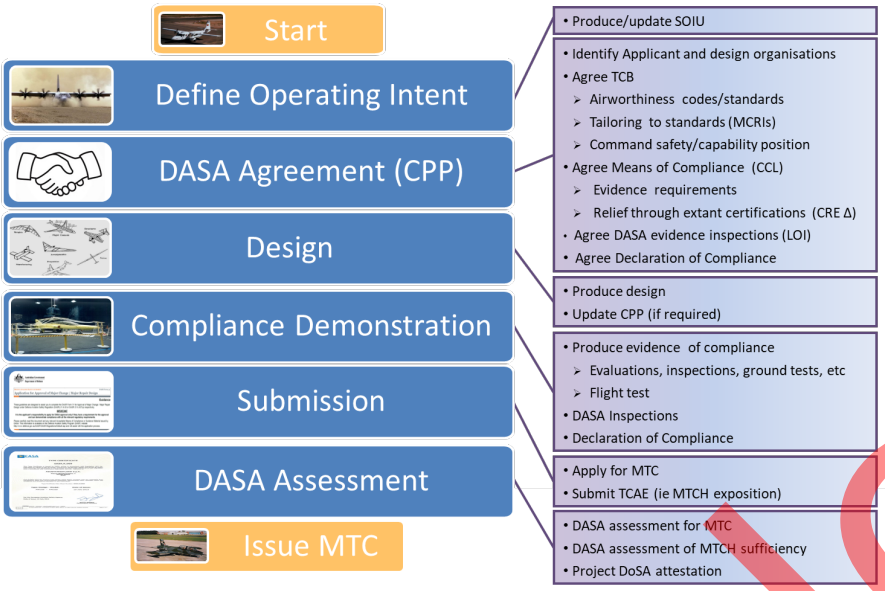


Figure 11: Path to issue of an MTC

6.1.2.79 An overview of the type certification process, culminating in an MTC, is shown in Figure 11. The first step, defining the operating intent for the aircraft, is pivotal to designers producing a design that is safe for Defence's intended Configuration, Role and Environment (CRE). A poorly-developed operating intent, or one developed late in the design lifecycle, can (and previously has) resulted in:

1. additional cost to re-design elements of the aircraft
2. operational limitations to eliminate the elevated risk, or
3. management and retention of elevated risk, often for the life of the aircraft.

6.1.2.80 The second step shows the Applicant and DASA agreeing on a Certification Program Plan (CPP). While a CPP is not explicitly required by DASR, it is inconceivable that Defence would pursue a certification program without an agreed CPP, since it imposes obligations on both the Applicant and DASA. Critically, the CPP:

1. agrees on the Type Certification Basis (TCB) for the new aircraft, which comprises the airworthiness requirements (inclusive of tailoring) that the design must meet
2. agrees on the evidence that will be produced by the design organisation(s) to demonstrate the design complies with the TCB
3. agrees on the application of 'recognition of prior acceptance', where existing product certifications by DASA-recognised NAA/MAAs will contribute to the certification of Defence's new aircraft [22]
4. defines the extent of DASA's inspections of compliance demonstration evidence.

Superseded

6.1.2.81 The tailoring of the TCB, mentioned in the first sub-paragraph above, is accomplished using one of five types of Military Certification Review Item (MCRI)[23]. Four of these MCRIs either maintain or improve the safety of the aircraft design, while the fifth, the 'Exception MCRI', can approve a reduction in the safety of the aircraft design. This reduction is only justifiable where requiring compliance with a TCB requirement would adversely affect Defence capability. While DASA ultimately approves the Exception MCRI, it is based heavily on Command's confirmation that a capability imperative exists, and that the risks due to the TCB non-compliance have been eliminated or otherwise minimised SFARP. The document used to communicate and record these Command risk decisions is normally the Airworthiness Issue Paper (AwIP). Guidance for AwIPs is provided at annex C.

6.1.2.82 The third step in the certification process is where the design organisation produces the design. For new Defence-unique designs, this often requires a DASA-approved MDO unless the design will be certified by a DASA-recognised NAA/MAA, as explained earlier in this chapter. The MDO must be in place before the design effort commences.

6.1.2.83 The fourth step, Compliance Demonstration, is where the MDO produces evidence that their design meets the DASA-agreed TCB. This step may require DASA approval of an MPTF to enable flight testing if the aircraft is already on the Defence Register. The MPTF is explored later in this section.

6.1.2.84 The fifth and six steps wrap up the certification process, and are largely self-explanatory. It is worth noting that while an Airworthiness Board (AwB) is not a prerequisite for DASA issue of an MTC, if the Defence Aviation Authority (Defence AA) elects to convene an AwB near to the MTC issue date, then DASA may wait until after that event to issue the MTC. AwBs are explored later in this chapter.

6.1.2.85 **MCoA.** As noted previously, an MCoA cannot be issued prior to the MTC. However, it is normal practice for the Defence acquisition organisation to be prepared in advance, so DASA[24] can issue MCoAs for the delivered fleet directly following the issue of the MTC. DASPMAN Volume 3 Chapter 5.3 presents the conditions and processes for MCoA issue.

6.1.2.86 **MPTF.** Once a new aircraft type has been added to the Defence Register, but prior to issue of the MTC, MAOs may need to operate the aircraft. For example, the flight test MAO may need to conduct flight tests to generate compliance demonstration evidence, and to contribute to operational test and evaluation (OT&E). The operational MAO may need to maintain crew currency, evolve OIP, conduct OT&E, and so on.

6.1.2.87 DASA can issue an MPTF if the aircraft design has been shown to substantially comply with its TCB, the configuration of the aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions, and any elevated risk has been justifiably retained. An MPTF is effectively reliant on both the MTC and the MCoA processes being well-advanced.

6.1.2.88 The initial MPTF will usually constrain the MAO's operation of the aircraft. After all, the type certification program is still incomplete so there will be areas of the design that are known to be deficient or where uncertainty still remains, and hence the MPTF will impose commensurate risk controls. DASPMAN Volume 3 Chapter 7.5, Flight Conditions and MPTFs, explores MPTFs and their associated flight conditions, including risk management, the application process, periods of validity, and so on. The MAO will often self-impose additional constraints on flight operations, and will ease these constraints as the systems and personnel skills mature.

Superseded

6.1.2.89 **AMP.** CASG's Reliability and Aircraft Maintenance Program (RAMP) team, which is collocated with DASA's Melbourne office, provides Defence's centre of expertise for AMPs, and advises DASA on whether an AMP should be approved[25]. Both DASA and the RAMP team should be engaged early in the acquisition phase for guidance on AMP requirements.

Activity 4: Convene an Airworthiness Board

6.1.2.90 As discussed in Chapter 6.1.1, the Defence AA would normally require that an AwB be convened prior to operation of a new aircraft on the Defence Register[26]. The Introduction into Service AwB, normally held immediately prior to the commencement of flight operations, complement regulatory activities conducted by the DASA and build on the confidence of DASA authorisations. This AwB is underpinned by progressive check-ins by the board members with both DASA and the regulated community, focussing on:

1. understanding the status of DASA assurance of relevant products and organisations
2. safety assurance of the collective enterprise (CM, CASG, Industry) introducing the new platform;
3. potential organisational culture hazards; and
4. transition safety risks associated with the introduction of the capability through to reaching initial operational capability milestones.

6.1.2.91 The artefacts submitted by Applicants to the AwB would predominantly consist of already produced project documentation and attestations that collectively summarise the readiness to commence Flight Operations:

1. Airworthiness Plans, Artefacts, Approvals and Authorisations
2. FIC Status and Capability Realisation
3. Integrated Airworthiness System Assessment
4. MAO Risk Management and OIP

6.1.2.92 The Defence AA would normally require progressive AwBs during the initial operating period for a new aircraft, most likely aligned with key Operational Capability milestones. Hence the AwB can explore whether the operational and support systems are maturing commensurately. Periodicity might be influenced by the severity of organisational and/or product deficiencies noted during DASA assurance activities and/or a previous AwB.

6.1.2.93 Annex D presents additional guidance on the submissions, requirements and conduct of an AwB for a new aircraft type.

Superseded

Activity 5: Follow-up DASA assessments

6.1.2.94 The organisational and product authorisation requirements presented in this chapter are seldom wholly implemented when the Applicants apply for the relevant DASA authorisations. Provided DASA is satisfied the safety risks due to the deficiencies can be robustly managed, this may not preclude DASA from issuing the authorisation, as explored in the following paragraphs.

6.1.2.95 **Organisational approvals.** When DASA initially issues an organisational approval, the processes and people may not yet have been exercised for the new aircraft type. For example, an MDO may not have produced designs, the MAO may not have exercised its ASMS, organisational deficiencies may have been identified by DASA, and so on. Equally, the organisation may self-identify temporary deficiencies in their own processes and people.

6.1.2.96 These issues may not preclude DASA from issuing the organisational approval if satisfied the organisation has the ability to safely operate and support the aircraft. DASA may elect to moderate this risk through, amongst other things:

1. placing limitations on operations, initially via the initial MPTF and later via the OpSpec
2. initially constraining the 'privileges' that are available to organisations under some regulations
3. re-visiting the organisation soon after their systems and processes have been exercised.

6.1.2.97 Over time, once DASA is assured the deficiencies or lack of experience have been addressed, the constraints may be eased. The Defence AA may convene AwBs to provide additional confidence.

6.1.2.98 **Product authorisations.** As a matter of pragmatism, a MTC can be issued before compliance with the TCB has been entirely demonstrated. As a result, the MTC may include temporary limitations, or the TCB may include temporary Exception MCRIs (with supporting AwIPs documenting essential risk management), pending resolution of the outstanding design issues. Once evidence of TCB compliance is provided to DASA's satisfaction, the limitations or other risk management measures can be progressively removed.

Project completion

6.1.2.99 Even after the above five activities have been substantially completed, residual issues may still be outstanding. Provided these issues are sufficiently few in number and complexity[27], they have been professionally transitioned to the running system, and any associated risks are being managed in the relevant ASMS, DASA will in due course consider the acquisition project to be closed.

6.1.2.100 The residual issues will be monitored by DASA through normal compliance assurance activities.

Niche Applications

Superseded

6.1.2.101 So far, this chapter has focused on new aircraft types being acquired by Defence. This final section will explore three niche applications of the information presented in this chapter, namely fleet additions, acquisition of used aircraft, and Major design changes to in-service aircraft.

Fleet addition aircraft

6.1.2.102 When additional aircraft are to be added to an extant Defence fleet, the guidance presented earlier in this chapter is still mostly relevant, although it can be applied in a substantially abbreviated form. An assessment of each of the five activities from the previous section is presented below.

6.1.2.103 **Activity 1: Agreement on DASA authorisations.** The information presented in the previous section is entirely relevant. That is, the acquisition organisation should engage with DASA before contracts and other agreements are signed, and an agreed path to DASA approvals should be documented in an ASAMP. The ASAMP will be much abbreviated compared to the acquisition of a new aircraft type, and some of the ASAMP annexes will not be required.

6.1.2.104 **Activity 2: Organisational approvals.** Each of the organisational approvals will likely be in place, so this activity is limited to ensuring those organisations can manage the additional workload and (where applicable) the configuration differences of the new aircraft.

6.1.2.105 **Activity 3: Product certifications.** If the new aircraft are precisely the same configuration as the extant fleet, they can simply be listed on the MTC and individual MCoAs then issued for each new aircraft. More likely, however, there will be configuration differences. While other avenues may be acceptable, most often the new aircraft are added to the MTC mirroring the configuration of the extant fleet, and the configuration deltas for the new aircraft are processed as design changes (Major and Minor) to the common type design. If there will be a delay in completing this activity, an MPTF can be used to cover the configuration differences of the additional aircraft.

6.1.2.106 If there are substantial configuration differences to the extant fleet, perhaps even with changes to the TCB, the new aircraft might need to undergo a targeted type certification program that focuses on the configuration deltas. DASA's approval may be reflected as a separate model number on the MTC, or the deltas might be encompassed in a Military Supplemental Type Certificate (MSTC).

6.1.2.107 **Activity 4:** AwB. AwB independent review of additional aircraft would normally be considered as part of the next scheduled sustainment AwB. In exceptional circumstances, a separate AwB may be convened if the acquisition of additional aircraft requires appreciable changes to extant FIC arrangements.

6.1.2.108 **Activity 5:** Follow-up DASA assessments. The information on product deficiencies presented in the previous section is equally relevant to fleet addition aircraft. The information on organisational deficiencies, on the other hand, is unlikely to be applicable; rather, the next routine compliance assurance activity would check how the organisation is coping with the extra workload.

Used aircraft

Superseded

6.1.2.109 Where Defence elects to acquire used aircraft, the guidance presented earlier in this chapter is entirely relevant. However, there are additional actions that will need to be undertaken for Activity 3: Product Certification, namely the provision of additional documentation and the completion of additional inspections to support the issue of an MCoA.

6.1.2.110 **Documentation.** DASR 21.A.174 presents a list of the additional documentation needed for a used aircraft, namely:

1. (if the aircraft originates from a foreign military applying an EMAR based regulations): a Military Airworthiness Review Certificate;

2. (if the aircraft originates from a civil state of registry that is recognised by DASA): an export certificate of airworthiness from the recognised CAA;

3. (if the aircraft originates from elsewhere):

    i. a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer

    ii. a weight and balance report with a loading schedule

    iii. the flight manual and any other manuals required by the Authority of the State of registry

    iv. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness

    v. a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

6.1.2.111 **Inspections.** Used aircraft require a more stringent inspection than new build aircraft, and must be performed by an appropriately qualified, independent and experienced organisation. The inspecting organisation is to conduct a comprehensive review of the aircraft design, maintenance and operational documentation, verified by a physical inspection of the airframe structure, engines and other systems.

6.1.2.112 The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:

1. details of the aircraft inspected, including registration number, manufacturer, serial number, model designation, and Certificate of Airworthiness number

2. last known inspected configuration of the aircraft

Superseded

3. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and lifed component status

4. details of any major structural and life-limited component changes made to items such as wings and tailplane, and a summary of the individual histories of such components, unless new when fitted

5. details of any accidents or incidents in which the aircraft has been involved

6. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated

7. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies

8. a condition assessment of flight safety critical components and fatigue-sensitive structure

9. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection

10. flight manuals and any other manuals.

6.1.2.113 Should Defence be contemplating the acquisition of used aircraft, DASA should be contacted early in the decision process. DAVENG staff in particular will provide the acquisition project with useful guidance.

Major design changes

6.1.2.114 This chapter has so far focused on aircraft acquisitions. However, the content can be extensively applied to particularly complex Major design changes to in-service aircraft. A Major design change is one that has an appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product .

6.1.2.115 Defence currently conducts around 70 Major design changes to its fleet each year. Most of these design changes have little if any significant impact on the aircraft operator or support organisations. Occasionally, however, Defence undertakes a Major design change whose effects pervade the DASP.

6.1.2.116 An example might be an extensive mid-life cockpit upgrade, which will not only challenge the design organisation, it can extensively affect MAO OIP, require simulator upgrades, change the aircrew training curriculum, allow new Performance Based Navigation approvals, require additional maintenance equipment and training, require new production organisations, require parallel operations of two different aircraft configurations for extended periods, and so on. An extensive flight test program to explore human factors and other certification issues might also be required.

Superseded

6.1.2.117 Making such pervasive changes to the aircraft and supporting systems can be a complex undertaking that requires coordination and often robust risk management across multiple organisational boundaries. While it perhaps does not have the complexities of introducing a new aircraft into service, it is far from straightforward and can introduce elevated safety risks if not executed well. In such circumstances, increased independent assurance from DASA is likely to benefit aviation safety.

6.1.2.118 Where DASA, in consultation with the MAO and CASG, identifies a Major design change that warrants this expanded DASA independent assurance, DASA will treat the project similarly to an aircraft acquisition. This may include, for example, increased scrutiny of organisational approvals, a closer assessment of how the new configuration is introduced into service (including, if necessary, imposing temporary operating constraints), greater assurance of risk management decisions, and so on. The Defence AA may require an AwB to be convened to provide an independent review of how well the new configuration has been integrated into Defence.

6.1.2.119 For these Major design changes, the guidance in the previous section is applicable almost in its entirety. Notably, an ASAMP should be raised, albeit some elements will self-evidently either be of limited scope or not applicable. An SOIU update may be required, organisational approvals may need to be expanded, and so on. The only element that is unchanged is the type certification process, since DASA certification oversight is always implemented commensurate with risk, and this is unaffected by the additional DASA scrutiny outlined in this section.

Annexes:

1. Project Initiation Meeting
2. ASAMP Guidance
3. Airworthiness Issue Papers
4. Airworthiness Board Guidance

6.1.3 Acquisition of Non-Defence-Registered Aircraft

Introduction

6.1.3.1 Civil registration of a Defence aircraft may be attractive to Capability Managers (CMs) and acquisition organisations. It may provide contractual and ongoing management simplicity, and sometimes lower costs and result in a faster introduction into service.

6.1.3.2 Regardless of the registration arrangement, Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people, and facilities on the ground. However, in the case of non-Defence-Registered (NDR) aircraft, DASA has a comparatively lesser role in guiding and assisting Command in meeting these obligations.

Purpose

Superseded

6.1.3.3 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators through the aviation safety requirements and recommended practices during the acquisition of an NDR aircraft, but only to the extent, that DASA is involved in the process.

CONTENT UNDER REVIEW

Circa 2023, DASA is currently conducting a major review of the DASA approach and regulations for non-Defence Registered (NDR) aircraft. The review will assess, amongst other things, the legal implications of a State aircraft being regulated by a civil regulator, the need (if any) for DASR regulations to supplement the civil regulations, the role of DASA (if any) in aviation safety assurance, and so on.

Once the review is completed, DASR.NDR and this DASPMAN chapter will be updated. In the meantime, Defence organisations considering the acquisition of a NDR aircraft should contact DASA for advice.

Superseded

Annex A - Project Initiation Meeting

(a) This annex is intended to guide an initial project meeting between the Defence acquisition organisation, the capability manager and DASA specialists. On the DASA side, participants should include the Directors and/or their senior representatives from DIA, DAVNOPS, DCA and DAVENG.

Note: *Some of this information may already have been provided to DASA, if a meeting to explore Defence versus civil registration of the aircraft was convened, as discussed in Chapter 6.1.1*

(b) The following outline could be used as the basis for a meeting agenda.

Project Overview

(c) The acquisition lead should provide an introductory overview of:

1. the project aim and scope
2. the acquisition approach, including proposed contracts and agreements
3. the candidate aircraft type(s)
4. the likely scope of Defence-unique design changes
5. the broad schedule for contract signature(s), design, delivery, addition to the Defence Register, initial operation, etc
6. an overview of the Defence acquisition team (eg project office, capability sponsor, transition team, industry partners, etc)
7. any other information that will help participants understand the next items.

Aircraft operation

(d) The capability manager should ensure all participants have a broad understanding of likely arrangements for aircraft operations, including:

1. Who is the MAO(s)?
2. What is the scope of operations envisaged under the initial operational approval?
3. What is the status of the SOIU?
4. For existing MAOs, provide insight into the likely effort needed to adapt extant FMS, OIP, QMS, SMS, etc
5. What new operations facilities and buildings will be needed?
6. What are the MAO's broad plans for initially operating the aircraft, and then growing the capability over time?

Superseded

(e) The ensuing discussion should ensure that participants have sufficient context and information to draft and approve the MAO-related elements of the ASAMP.

Aircraft design, construction and maintenance

(f) The acquisition lead should ensure all participants have a broad understanding of likely arrangements for aircraft design, construction and maintenance. The information may be shallow at this stage; detail can be explored in subsequent sub-meetings with the relevant specialists.

(g) **Aircraft Design (and certification).** Based on whether the aircraft will be a continuous "State' aircraft, a decision regarding the type of aircraft registration can be made. Where Defence Registration of the acquired aircraft is being considered by the acquisition SPO and MAO, establish a shared broad understanding of the likely arrangements for initial design of the aircraft, and then in-service support of the design.

1. For the green aircraft (ie the unmodified common aircraft off the production line):
   i. To what extent has the green aircraft been certified by a DASA-recognised CAA/MAA? When?
2. For the Defence-unique modifications:
   i. Who will design the modifications?
   ii. Will another CAA/MAA certify the modifications (whether partially or fully) for Defence? From this, broadly understand the residual certification work that will fall on Defence.
   iii. Will DASA need to approve an MDO for the design? If so, who will be the applicant?
   iv. What does the project office expect their role will be in the type certification process?
   v. What is the broad schedule for certification?
3. Initial operations on the Defence Register (under MPTF):

Superseded

i. What scope of flight test may be needed?

ii. What scope of operations does the MAO intend to initially conduct under the MPTF?

iii. What is the broad schedule?

4. Military Type Certificate Holder (MTCH):

i. Which SPO will lead the MTCH function?

ii. Who will comprise the MTCH organisation

iii. What support from other organisations (eg other militaries) is there likely to be?

5. For in-service design functions (eg designing future modifications and repairs), which MDO approval will be required?

(h) **Aircraft production (construction)**. Establish a shared broad understanding of the likely arrangements for production of both the green aircraft and Defence-unique design changes

1. For the green aircraft:

i. Who will produce the aircraft?

ii. To what extent will a DASA's recognised CAA/MAA oversight the production of each Defence tail?

2. For the Defence-unique modifications:

i. Who will incorporate the Defence-unique modifications onto the aircraft?

ii. To what extent will a DASA's recognised CAA/MAA oversight the production of each Defence tail?

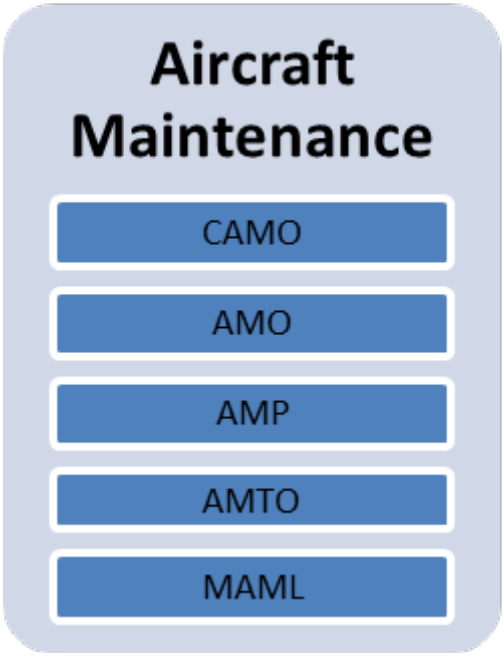
iii. Will DASA need to approve a MPO?

iv. Where Defence-unique modifications are made to used green aircraft, how will continuing airworthiness obligations be met?

3. What is the proposed broad approach to achieving Military Certificates of Airworthiness?

(i) **Aircraft maintenance**. Gain a shared broad understanding of the likely arrangements for aircraft maintenance:

Superseded



1. CAMO:
   i. Who will lead the CAMO function?
   ii. What organisations are likely to support the CAMO function?
2. AMOs:
   i. What Defence AMOs are proposed, and what is their likely scope?
   ii. What Industry AMOs are proposed, and what is their likely scope?
   iii. What works will be needed to create suitable facilities, and when is this scheduled?
   iv. What is the broad schedule for establishing the AMOs?
   v. What MAMLs are likely to be needed for each?
3. AMP:
   i. Will aircraft preservation activities be required after the aircraft is added to the Defence Register but before first flight operations?
   ii. What is the broad schedule for approval of the AMP?
   iii. Has the CASG Reliability and Aircraft Maintenance Program (RAMP) team been consulted, for assistance with contractual and other requirements?
4. AMTO:
   i. Who will be the AMTO?
   ii. What is the broad schedule for AMTO approval?
5. MAML:
   i. What is the broad schedule for attainment of MAMLs or new Military Aircraft Type Ratings?

Superseded

(j) The ensuing discussion, perhaps supplemented by specialist sub-group discussion (see below), should ensure that participants have sufficient context and information to draft and approve the ASAMP elements related to design, construction and maintenance.

DASA Assurance

(k) DASA should provide insight into how independent assurance will be conducted, and the common coordination arrangements:

1. identify the lead DASA POC (usually a DIA member)
2. identify a lead from each Directorate, and offer their direct assistance
3. agree on future interaction (timeline, participation in WGs, future liaison, etc)
4. introduce the role of the ASAMP, and agree on DASA's role in contributing to the draft
5. identify relevant DASA training courses and guidance material
6. provide insight into the likely need for AwBs, including timings and submission requirements.

Specialist sub-groups

(l) All of the above discussions should be held in the initial forum, to ensure all participants have a shared understanding of the broad project aims and arrangements. Either the same day, or on a later occasion, specialist sub-groups should convene to explore the issues relevant to them issues in more detail. This step has significant potential to reduce wasted effort by all parties, and will form the basis for the relevant ASAMP annexes (refer annex B).

Superseded

Annex B - ASAMP Guidance

Introduction

(a) The Defence Aviation Safety Regulations (DASR) establish a series of interrelated requirements that must be satisfied for the issue of DASA authorisations necessary to support Introduction into Service (IIS) and the commencement of flight operations of a new or modified aircraft. A representation of the interconnectivity of DASA authorisations for Defence registered aircraft acquisitions is in Appendix A. Coordinated development of the supporting data and artefacts required under the DASR for each DASA authorisation will minimise the potential to introduce capability risks of not having DASA authorisations in place to support the **intended** scope of operations prior to IIS. DASA recommends developing a programmatic plan (known as an Aviation Safety Acquisition Management Plan (ASAMP)) to coordinate the development of supporting data and artefacts required to achieve the interrelated DASA authorisations under the DASR.

Purpose

(b) This chapter describes the process of planning and the execution required to develop an ASAMP.

DASR Requirements

Identification of regulations

(c) This annex traverses multiple DASR to provide clear direction as to how the Capability Manager (CM) / Military Air Operators (MAO) and System Program Offices (SPO) may plan and document their strategy for achieving aviation safety requirements during acquisition[1]. The following DASR are applicable to this annex:

1. DASR ARO, NDR and UAS
2. DASR 21
3. DASR M
4. DASR 145
5. DASR 66
6. DASR 147
7. DASR SMS

Guidance

(d) Within the Defence Aviation Safety Framework (DASF), a MAO must obtain the required DASA authorisations prior to commencing aircraft flying operations using Defence registered, Non-Defence registered or Uncrewed Aircraft Systems. These DASA authorisations cover both:

Superseded

1. product, such as:

    i. MTC/TCDS

    ii. major change to type design

    iii. Military Certificates of Airworthiness

    iv. registration of aircraft

2. people and process, for instance:

    i. organisational approvals such as:

        – MAO

        – CAMO

        – MDO

Aircraft Maintenance Programme

maintenance licenses / type ratings and permits.

(e) Read narrowly, the DASR associated with each of these authorisations are self-contained and provide the detail required to achieve each authorisation as a standalone activity. However, experience in implementing these regulations has demonstrated that insufficient coordination of these authorisations poses a substantial risk to program goals and may cause risks to aviation safety. The design of the ASAMP framework supports development of a coherent strategy to achieve the required safety authorisations.

Why an ASAMP?

(f) The ASAMP design addresses conditions unique to the DASF and does not exist in comparable aviation safety frameworks. Specifically, Introduction-Into Service (IIS) activities under the DASF usually include multiple parallel lines of effort across Initial Airworthiness, Continuing Airworthiness and Flight Operations domains. These lines of effort cross organisational boundaries, such as the MAO, Capability Acquisition and Sustainment Group, industry, foreign militaries and CAAs/MAAs. Additionally, the integrated nature of the regulations means that considerations in one domain— such as shortfalls against airworthiness requirements identified during type certification— may require implementation of measures in the flying management system under the flight operations regulations. The MAO's development of a coordinated approach to aviation safety across Initial Airworthiness, Continuing Airworthiness and Flight Operations will assist in establishing that risks to safety have been eliminated or otherwise minimised so far as is reasonably practicable. The ASAMP supports commanders and managers to account for this cross-regulation dependency and fulfilment of safety obligations.

(g) DASA advice should be sought where there is uncertainty as to the need for an ASAMP.

Aviation Safety Acquisition Management Plan

(h) The ASAMP documents a strategy for achieving the required DASA authorisations required for IIS. These DASA authorisations include organisational authorisations, product authorisations

Superseded

and personnel authorisations. A supporting schedule should detail the requisite DASA authorisations, identify the responsible organisations, provide indicative submission dates, identify anticipated DASA involvement and specify required DASA response dates.

(i) The intended audience for the ASAMP is the CM/MAO, SPO, CAMO, DASA and Flight Test staff involved in the acquisition program. The ASAMP should contain sufficient detail to contextualise the contributions of each of these work areas[2].

(j) The CM/MAO and SPO should consider raising an ASAMP in the following circumstances:

1. when introducing a new aircraft type into Defence service
2. when incorporating substantial design changes that are complex, and require coordination of numerous, diverse activities to achieve the required DASA authorisations
3. when introducing a Certified or Specific Type A category Uncrewed Aviation System (UAS) into Defence service.

(k) The ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistic and safety management activities. The ASAMP needs to describe arrangements that will support IIS and all aviation safety activities required to realise the scope of operations described in the SOIU.

(l) The ASAMP should describe the management of flight operations during acquisition. Specifically, if flight operations are to commence prior to achieving all aviation safety authorisations (e.g. commencing flying before receiving MTC) the ASAMP must provide a detailed description of the process to be employed for identifying and managing aviation safety hazards during this period.

Acceptable approach to compliance

(m) Before the first flight under the DASF, commanders must ensure suitable arrangements for Initial Airworthiness, Continuing Airworthiness and Flight Operations are established. Therefore, it is incumbent on commanders to establish an aviation safety program that is capable of demonstrating compliance to all relevant aspects of the DASR for their specific context.

(n) **Determine applicable DASA authorisations.** The DASR are a suite of requirements that accommodate all forms of military aviation. Because of this necessary breadth, not all DASR will be applicable to every program. Therefore, it is necessary for the CM/MAO to determine which DASA authorisations are applicable to their program. A number of factors, including the method of procurement, method of registration, existing certifications with other airworthiness authorities, logistics support concepts, anticipated tasks and roles will influence this decision.

(o) **Planning.** The CM/MAO should plan how to achieve the required DASA authorisations. When government approves a new capability or major change, the IIS date (the date by which all DASA authorisations to conduct flight operations must be in place) is set. Hence, the CM/MAO should schedule (in the program plan—called out in the ASAMP) the DASA authorisations necessary to conduct flight operations in time to meet the IIS date. To identify the work breakdown structure to schedule the enabling activities for the necessary DASA authorisations, a CM/MAO should identify the task dependencies nested in the DASR and

Superseded

work backwards from the IIS date to determine the required sequence and schedule of activities.

(p) At this stage of development, it is not necessary for the CM/MAO to have detailed plans regarding exactly how to achieve each DASA authorisation. However, if the CM/MAO seeks relief from demonstrating compliance to DASR by utilising CAA/MAA recognition or another flexibility provision, then the CM/MAO should engage DASA to discuss the suitability of the proposed approach.

(q) **Workshops.** During the acquisition phase, there may be multiple ways for projects to achieve aviation safety requirements—with differing timelines, risks and resource or capability costs. When SPO and CM/MAO are evaluating the different options, DASA staff may be able support evaluation workshops. Early engagement with DASA is key to obtaining assistance. DASA staff can advise how the DASR will apply to the different options; and inform how a prospective applicant should structure their submissions to DASA.

(r) **Stakeholder endorsement.** The SPO should obtain stakeholder endorsement before approving an ASAMP. Senior executives from the organisations responsible for achieving tasks listed within the ASAMP should endorse the ASAMP. To ensure ACAUST may verify compliance within the OPAW framework required, the Project Manager must submit an ASAMP to ACAUST for endorsement. If the aircraft Type has been listed on a MAOC OPSPEC, the relevant FEG CDR must also endorse the ASAMP prior to ACAUST review. DG DASA endorsement is required. Prior to DASA endorsing the ASAMP, staff from each of the DASA Directorates (Initial Airworthiness, Continuing Airworthiness, Aviation Operations and Aviation Engineering) will confirm that the tasks outlined in the ASAMP are sufficient to achieve IIS. DASA staff will also identify caveats to the DG DASA's endorsement of the ASAMP. Detailed review at the endorsement stage minimises the likelihood of identifying additional aviation safety requirements during the latter stages of the acquisition process, and minimises attendant impacts on schedule and cost.

ASAMP content guidance

(s) The ASAMP is a flexible document that CM/MAO/SPO should modify to meet the needs of their project. However, the following topics are applicable to all new or modified aircraft types. The following paragraphs provide guidance regarding the content of an ASAMP.

(t) **Structure.** The ASAMP provides the high-level plan for achieving DASA Authorisations necessary for IIS. SPO's and CM/MAO's may find it beneficial however to also include lower-level, detailed planning information regarding how each specific DASA Authorisation will be achieved, the required tasks, assigned responsible organisations for accomplishment and task coordination and schedule. To minimise amendment and approval overhead, the low-level planning for individual DASA authorisations should be included as annexes to the ASAMP, with separate configuration control and Approval/Endorsement fields. Figure 1 below represents the structure of the ASAMP.

Superseded

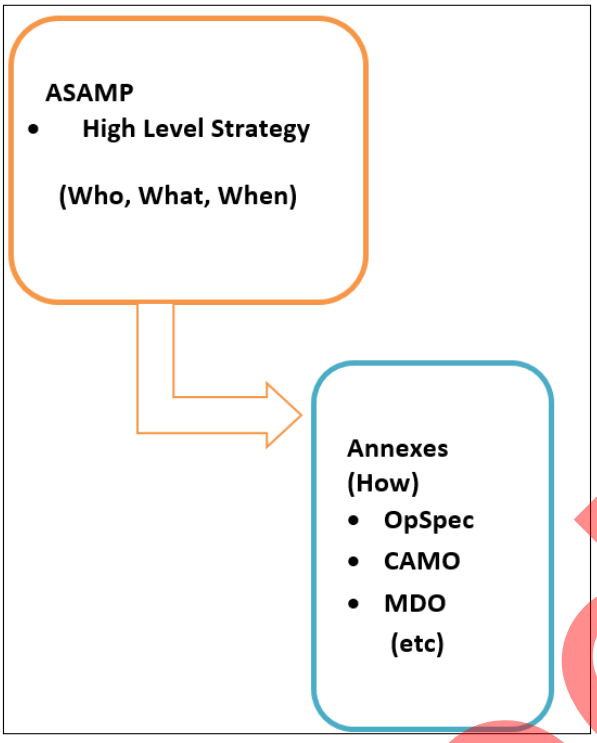


Figure 1: ASAMP Structure

(u) **Coordination and scheduling.** General programmatic and scheduling information, including a:

1. general description of the acquisition activity including key activities and a general description of the capability outcome and method of acquisition

2. high level acquisition schedule which details key capability milestones (eg delivery of aircraft, first flight, initial materiel release, full operating capability).

(v) Projects may choose to introduce new aircraft by starting with a minimum viable capability; and then progressively adding new roles, as support arrangements mature. If adopting this approach, projects should incorporate a basic description of the capability milestones into the ASAMP.

(w) **Registration of aircraft.** This section should detail the planning for the registration of new aircraft or additions to existing fleets. DASPMAN Chapter 6.1.1 annex B provides further guidance.

(x) **Initial and Continued Airworthiness aspects.** This section of the ASAMP should detail the planning for both product and organisation authorisations. Where the aircraft is to have an MTC, many of the certification details will be contained in the CPP. Therefore, the objective of this section is not to reiterate what is in the CPP[2]. Instead, this section is to focus on how artefacts developed in the Initial Airworthiness domain relate to the overall aviation safety program and how other DASA authorisations may affect Initial Airworthiness aspects. This section should include:

1. an overview of the key features of the certification strategy[3], such as:

   i. use of recognition of prior acceptance

   ii. indigenous development of compliance demonstration evidence

Superseded

iii. flight testing of Defence registered aircraft either in Australia or under another CAA/MAA.

2. identification of the certification products such as MTC or major changes to type. This should include general details of sequencing when multiple changes are required to achieve the scope of tasks described in the SOIU

3. a description of where to employ an MPTF to conduct flying without a, or with an invalid, Military Certificate of Airworthiness (MCoA)

4. identification of applicable MCoA requirements and a description of who will address these requirements and when

5. if the initial certification is less than the complete scope of the SOIU, an identification of the anticipated limitations at first flight (ie what the aircraft will be capable of at first flight) and the plan for achieving the full scope of the SOIU

6. identification of updates to organisational approvals and authorisations required to apply for type certificate or deliver in-service support (eg IAW DASR 21 SUBPART J and MTCH)

7. **Engine and aircraft structural integrity program content.** This section should identify Aircraft and Engine Structural Integrity Management Plan (ie ASIMP and ESIMP) requirements and scheduling; and which organisation(s) is/are responsible for their development.

(y) **Continuing Airworthiness aspects.** This section should describe the Continuing Airworthiness DASA authorisations required to operate the capability after IIS and beyond, including the required tasks, resources, scheduling; and organisation(s) responsible for developing the applications. Detailed planning with respect to how the authorisations will be achieved may be described in the ASAMP or further developed in the ASAMP CAMO annex, including:

1. identification of new organisational approvals and authorisations required (IAW DASR M, 145, 147) or variation to such

2. systems for granting personnel authorisations and licences (IAW DASR 66).

(z) **Flight Operations aspects.** This section should describe the DASA authorisations required to satisfy flight operations requirements for IIS and beyond. This section does not need to detail exactly how the CM/MAO will develop each element. However, it should include:

1. **Organisational authorisations.** This may also include variation of existing organisation authorisations of the OpSpec.

2. **Flying Management System.** This section should describe how the MAO will develop or modify the flying management system in compliance with DASR ORO.10.

3. **MAO OIP.** Usually, aircraft specific OIP will accompany the delivery or modification of aircraft. OIP includes the Aircraft Flight Manual (AFM) and Minimum Equipment List (MEL), as well as MAO developed OIP such as Checklists, Flying Orders, SFI, SI (OPS), STANMAN. OIP requiring DASA authorisations are the AFM, AMP, MMEL and MEL.

4. **Specific Approvals.** Some types of operations require Specific Approval from DASA (e.g. PBN, RVSM, use of EVIS). Where the SOIU includes these types of operations, the ASAMP should present a plan showing who is responsible for developing the application to DASA and when this activity is scheduled. CM/MAO/SPO liaison with

Superseded

DASA to establish timelines is important to ensure that the necessary authorisations are in place prior to first operational use relating to the Specific Approval.

5. **Specific limitations.** Acquisition projects may introduce a new aircraft with a narrower scope of operations than that described in the SOIU. In these cases, the ASAMP should acknowledge any Specific Limitations to the SOIU scope at IIS. This will support development of the initial OpSpec annex.

6. **Aircrew training and categorisation schemes.** This section should describe the plan for the initial aircrew cadre as well as any arrangements for the mature training system.

7. **Flight Simulation Training Device.** If a CM/MAO is acquiring a Flight Simulation Training Device, this section should describe basic details (number, type, location, operator) and key schedule milestones.

(aa) **Establishing Safety Management Systems.** Acquisition or major change projects require a number of stakeholders to establish safety programs associated with Initial Airworthiness, Continuing Airworthiness and flight operations, such as:

1. system safety programs

2. hazardous materials programs

3. flight operations risk management plans.

(ab) The ASAMP should outline the interfaces and information sharing arrangements between the relevant stakeholders' Safety Management Systems (SMS) to address the management of risk, and transfer of retained risks, into the existing MAO's SMS through acquisition and into sustainment.

DASA authorisation low-level planning

(ac) CM/MAO's are encouraged to document the low-level planning for achieving each DASA authorisation in annexes to the ASAMP. These low-level planning annexes should identify the key tasks, their indicative schedule and key stakeholders for each task that the CM/MAO needs to accomplish in order to gain the required DASA authorisation. Lastly, if the CM/MAO is proposing novel organisational structures or Alternative Means Of Compliance to achieve a particular DASA authorisation, then the relevant ASAMP annex should describe these arrangements in sufficient detail for DASA to evaluate their potential effectiveness.

(ad) **Coordination and scheduling.** The specific tasks required by the DASRs to achieve each DASA Authorisation often do not occur in isolation with other aviation safety activities (e.g. type certification, operational test and evaluation, initial training). Therefore, developers of the ASAMP should anticipate some tasks being stand alone, and others being dependent on outcomes from other streams of work during acquisition. The Integrated Product Manager (or similar role) should incorporate tasks and time to complete associated with DASA authorisation development into the overall acquisition program.

(ae) For this reason, some ASAMPs may break DASA authorisation compliance into a number of discrete work packages that can be incorporated into the aircraft acquisition or modification programs Work Break-down Structure (WBS) and schedule into tools like Open Plan Professional. This detailed planning should be documented within the relevant ASAMP annex for each DASA authorisation, and provide sufficient scheduling information such that the

Superseded

applicant, CM/MAO and DASA can identify when applications, plans, artefacts will be submitted to DASA for approval; and when the applicant anticipates a return.

(af) Annex content. The content of each ASAMP annex is scalable to the project. Table 1 provides suggested content with a supporting DASPMAN reference.

Table 1: Annex content

DASA Authorisation	Reference	Comment
MAOC & OpSpec	Vol 3 Chap 5.3 annex A Vol 3 chap 6.1.1 annex C (SOIU) Vol 2 DASR ORO.10 (FMS) Vol 2 DASR AO.GEN.05 (MAO OIP) DASA Advisory Circular 01/2022 and DASR SPA (Specific Approvals) Vol 3 Chap 5.3 annex A (OCS and OpSpec Variation)	The ASAMP annex for MAOC and OpSpec should detail the responsibilities and schedule for the development of the following artefacts supporting the MAOC OpSpec. OpSpec Variation: The ASAMP annex should outline the tasks and responsibilities for development of the DASA Form 139a, and reflect the dependency on SOIU and OCS development tasks. DASA recommends that MAO plan to submit the DASA Form 139a and associated OCS no less than six weeks prior to IIS. SOIU: The SOIU Configuration, Role and Environment (CRE) described should match Command intent. The SOIU should developed to provide sufficient detail to support both type certification and identification of the DASA authorisations required to support the intended scope of operations at IIS. OCS: DASA recommends that MAOs identify the traceability between DASR requirements and the amended MAO OIP/FMS as early in the acquisition/ modification program as possible so that MAOs can incorporate DASR requirements into the MAO's FMS/ OIP development cycle and OCS revision ahead of IIS. FMS: Where adding a new or modified platform, the MAO must demonstrate the suitability of the existing FMS elements in supporting the intended scope of operations set out in the SOIU. The determination of DASR FLTOPS regulation applicability will assist in scoping the required amendments to the FMS, including identifying key stakeholders, resources and inter-relationships between each FMS element impacted by the IIS of the new or modified aircraft.

Superseded

		OIP: Introduction or modification of platforms invariably requires new or modified OIP, including aircraft operational publications and MAO OIP such as Standing Instructions/Flying Orders/Special Flying Instructions, etc. The ASAMP annex should outline the responsibilities (developer, sponsor) and schedule for each OIP amendment or development. Specific Approvals: Some aircraft operations require specific endorsements annotated in the MAOC OpSpec. These include Performance Based Navigation (PBN), Required Vertical Separation Minima (RVSM) and use of night vision imaging systems (NVIS). The ASAMP annex should outline the tasks and schedule for the development of supporting artefacts required under DASR.SPA and DASA AC 01/2022 for each Specific Approvals. Training: The ASAMP annex for MAOC and OpSpec DASA authorisation should establish the tasks associated with aircrew training development and delivery, including LMP development, courseware development, training delivery and aircrew qualification. Where applicable, the tasks associated with FSTD qualification and permit issue should be included.
CAMO	Vol 3 Chap 5.3 annex H	The ASAMP annex for CAMO DASA authorisations should outline the intended schedule and responsible parties for development of the DASR M approval application package and Aircraft Maintenance Programme (AMP), including any desired engagement workshops with DASA Directorate of Continuing Airworthiness.
MDO	Vol 3 Chap 5.3 annex E	The ASAMP annex for MDO DASA authorisations should outline the responsibilities, resourcing and scheduling for the development of the Military Design Organisation Handbook.
MPO	Vol 3 Chap 5.3 annex F	The ASAMP annex for MPO DASA authorisations should outline the responsibilities, resourcing and scheduling for the development of the Military Production Organisation Exposition (POE).
AMO	Vol 3 Chap 5.3 annex G	The ASAMP annex for AMO DASA authorisations should outline the responsibilities, resourcing and

Superseded

		scheduling for the development of the Maintenance Organisation Exposition (MOE).
MTO	Vol 3 Chap 5.3 annex I	The ASAMP annex for MTO should outline the responsibilities, resourcing and scheduling for the development of the Maintenance Training Organisation Exposition (MTOE).
MTCHO	Vol 3 Chap 5.3 annex J	The ASAMP annex for MTCHO should outline the responsibilities, resourcing and scheduling for the development of the Type Continued Airworthiness Exposition (TCAE).
Defence Registration and Military Certificate of Airworthiness (MCoA)	Vol 3 Chap 6.1.1 annex B Vol 3 Chap 5.3 annex O	The ASAMP annex for MCoA DASA authorisations should outline the responsibilities, resourcing and scheduling for establishing aircraft registration and the development of the MCoA (where applicable) application through DASA Form 25a.
Military Aircraft Maintenance Licences (MAML)	Vol 3 Chap 5.3 annex W	The ASAMP annex for MAML DASA authorisations should outline the responsibilities, resourcing and scheduling for the establishment of a Military Aircraft Type Rating, and the DASA Form 19/19a for the required number of maintenance staff necessary to support IIS of the new aviation capability.

(ag) **ASAMP updates or variation.** The acquisition environment is dynamic and projects often need to change the acquisition strategy and plans in response to external events. Therefore, it is likely that the Integrated Program Management Plan will diverge from the agreed ASAMP over time. Applicants should periodically update the ASAMP so it remains relevant. Specifically, applicants should update the ASAMP if the project significantly changes the structure or scope of aviation safety authorisations. For example, if the initial ASAMP involved obtaining an MTC before IIS, and a delay occurs such that initial operations will actually commence under a MPTF, then then an ASAMP update is appropriate.

(ah) DASA recommends the CM/MAO provide an updated ASAMP as part of the application for initial (or variation to an) OpSpec for a new (or modified) capability. This updated ASAMP should reflect the status of the acquisition program, including details of work completed and re-programing of remaining activities. The ASAMP should provide an impact statement and reference out to risk management where tasks associated with initial-flight under DASR are incomplete.

Endorsement and approval

(ai) **ASAMP.** The IIS of a new aircraft system will involve a number of organisations to achieve the operational, technical, logistic and safety management outcomes articulated in the ASAMP. Accordingly, the SPO should identify the relevant stakeholder organisations, and seek their

Superseded

endorsement prior to approving the ASAMP. At minimum, stakeholders should include CM representative, MAO-AM, SPO Director, DG-DASA, and Environmental Commander. Additional stakeholder signatories identified by the SPO should be a minimum of O6/equivalent or above.

(aj) Each endorsement will assess the supportability from a stakeholder organisation resource and scheduling perspective of the overarching aviation safety acquisition strategy articulated by the ASAMP, as well as its suitability for achieving the desired IIS outcomes. Following ASAMP endorsement by all relevant stakeholders, approval of the ASAMP should be sought from the relevant one-star/equivalent CASG Branch representative (e.g. DG ASR for MC-55).

(ak) **ASAMP annexes.** As detailed in Para 20, where a MAO/SPO has elected to include low-level planning annexes for each DASA authorisation, the MAO/SPO should identify relevant DASA authorisation stakeholders (including within DASA) for ASAMP annex endorsement and MAO approval. DASA recommends that stakeholders be a minimum of O5/equivalent or above, DASA stakeholders will typically be the Director of the relevant DASA Directorate responsible for issuing the specific DASA authorisation. Stakeholder endorsement should consider the supportability and suitability of the work breakdown structure and associated responsibilities and resources supporting achievement of the relevant DASA authorisation.

(al) DASA endorsement of individual ASAMP Annexes will consider the suitability of the proposed low-level plans for achieving the specific DASA Authorisation, and alignment with the higher-level ASAMP. It will also assess the supportability from a DASA directorate resource and scheduling perspective of the DASA task elements within each ASAMP annex.

(am) Should a stakeholder review identify a misalignment with the higher-level ASAMP, the ASAMP annex should not be endorsed until the ASAMP is amended to restore alignment.

Superseded

Annex C - Airworthiness Issue Papers

(a) Airworthiness Issue Papers (AwIPs) are primarily used to manage and communicate risks associated with complex airworthiness issues. This annex outlines the role of AwIPs and describes how they are drafted and processed.

Role of an AwIP

(b) The AwIP provides a structured format for documenting the application of Defence's seven-step safety risk management process in accordance with the 7-step risk management process (refer DASA AC 003/2018). Other forms providing similar functionality include the AE628 Risk Decision Brief and various aircraft-bespoke forms.

(c) An AwIP provides a template for thoroughly documenting the risk, the actions undertaken to eliminate or otherwise minimise the risk so far as reasonably practicable (SFARP) and the assessment supporting the final decision-to-proceed. The structured format facilitates improved communication between all stakeholders involved in managing a risk to airworthiness. Unlike other risk decision forms, an AwIP enables DASA to provide an independent position on the credibility and defensibility of the risk management process, prior to the final decision-to-proceed.

(d) AwIPs **must** be used for managing risks associated with complex airworthiness issues, given they require a high level of visibility and sustained focus. This include issues that link to airworthiness.

(e) That is, AwIPs are used to address complex aviation safety issues resulting from design shortfalls identified as part of a certification activity (ie MTC/MRTC/MSTC issue or major change approval), or where role and environment differences result in a safety issue with the design. In these situations the AwIP will be used to underpin the approval of a Military Certification Review Item (MCRI).

(f) AwIPs **must not** be used for issues that do not have a link to airworthiness or are outside the scope of aviation safety. Examples include issues related to ground safety, logistics and hazardous materials in an aircraft's design.

(g) **Complexity.** An issue is complex if it exhibits several of the following characteristics: [1]

1. Defining the problem or problems creating the issue may be difficult with different stakeholders perceiving the issue in varied ways, leading to uncertainty about what the issue is and how it should be resolved.
2. The risks associated with the issue interact with each other in complicated, dependent ways that are not necessarily well understood.
3. The issue has diverse stakeholders spread across both technical, operational and other domains.
4. The issue will require iterative risk management and thus iterative discussions amongst these diverse stakeholders.
5. The issue has long-term implications and consequences that extend far beyond the immediate context, both in time and scope.

Superseded

6. The issue cannot be easily resolved with 'quick fix' solutions to meet timelines based on capability imperatives. Such solutions may lead to unintended and undesirable consequences.

7. The information required to resolve the issue is uncertain or incomplete.

8. The issue involves new and novel technologies that may not be well understood.

Raising AwIP

(h) Where the AwIP is raised to document type certification-related risks, usually the applicant for the airworthiness instrument (Military Type Certificate Holder (MTCH), Project Engineering Manager (PEM) or 21J design organisation) will raise the AwIP in consultation with relevant operational staff. The person raising the AwIP should decide, in consultation with DASA, whether an issue is 'complex'.

AwIP status

(i) An AwIP has two statuses, namely 'Open' and 'Closed'. In the 'Open' status the issue remains under investigation and review (ie whilst investigation of potential controls, assessment of whether identified controls are reasonably practicable, and exploring sources of reasonable knowledge remain ongoing).

(j) In the 'Closed' status, either the investigation is complete, with the risks eliminated or otherwise minimised SFARP and the risk remaining is retained; or the investigations and implementation of all reasonably practicable controls are not complete, but progressed to the stage where the issue is no longer 'complex'. Remaining investigations and controls must be captured and tracked in the relevant safety management system. In both situations appropriate through-life controls are in place and being managed within the relevant safety management system.

Processing an AwIP

(k) **Section 1 – Evaluation and Risk Management.** Section 1 of the AwIP presents a combined technical and operational evaluation of the risk, in accordance with the seven-step risk management process, to demonstrate that the risk/s has been eliminated or otherwise minimised so far as reasonably practicable. The DASA AwIP template, available on the DASA website, provides guidance to assist the drafter completing each of the seven steps.

(l) **Section 2 – Authority Position.** Once Section 1 is finalised, the applicant should submit the AwIP to the Authority (via the DASA Type Certification mailbox) for its position on the relevant risks[2]. DASA will assess whether the documented seven steps provide a credible and defensible basis for Command risk decisions. The possible scenarios, together with the likely DASA positions, are as follows:

1. The risk management is credible, defensible and well argued in Section 1. DASA will provide a supporting DASA position without the need to expand on the argument.

Superseded

2. The risk management is credible, defensible but inadequately argued in Section 1. DASA will provide a supporting DASA position that clarifies the Section 1 argument, drawing out the key matters to be considered in Section 3.

3. The risk management is not credible and defensible. DASA will return the AwIP for re-work of Section 1.

4. In rare circumstances, if the requested rework cannot be completed due to time pressures or an impasse, DASA would document a dissenting position to Command, highlighting the areas of concern, which Command can consider in developing its position.

(m) To avoid the need for re-work or a dissenting Authority position, the Section 1 drafter should provide a draft of Section 1 to DASA prior to its formal completion.

(n) **Section 3 – Command position.** Once the Authority position has been provided, the applicant/drafter will staff the AwIP to Command for a Command Position. The Command position should confirm that the risk has been eliminated or otherwise minimised SFARP, and that Command has made a decision-to-proceed.

(o) **Section 4 – Authority disposition.** DASA will complete Section 4 as follows:

1. DASA will decide whether the AwIP will remain 'Open' or is now 'Closed', providing any closure requirements and any comments relevant to this disposition.

2. DASA may close an AwIP even though a risk still exists. Where the AwIP assesses that specific controls will become reasonably practicable in the future (eg a modification is being implemented but will take 24 months to incorporate across the fleet) the AwIP may be closed if DASA considers that Command could effectively manage and track the implementation of risk controls through an alternate system such as the platform hazard log.

3. DASA may leave an AwIP 'Open' where investigation into potential controls continues, until all controls have either been assessed as not reasonably practicable or reasonably practicable controls have been implemented. DASA may also decide to leave an AwIP 'Open' when doing so would materially contribute to safety by keeping sustained focus on the issue.

4. DASA will document its assurance that the Command position in Section 3 of this AwIP is congruent with the evaluation in Section 1, as possibly modified by Section 2. The term 'congruent' means that the Command position aligns consistently and logically with the evidence and reasoning provided in Sections 1 and 2 [3]

Continuous Monitoring and Review

(p) All risks evaluated in an AwIP must be subject to continuous monitoring and review, in the same way as all other aviation safety risks, regardless of whether the AwIP is 'Open' or 'Closed'. Both Command, and the MTCH where applicable, should ensure that risks continue to be eliminated or otherwise minimised so far as reasonably practicable. Monitoring should identify any changes in the relevant risks (consequence, likelihood or both) and changes to the risk controls in place. Reviews conducted at a specified time, such as annually, may not be sufficient for continuous monitoring and review. Therefore, risks associated with AwIPs should

Superseded

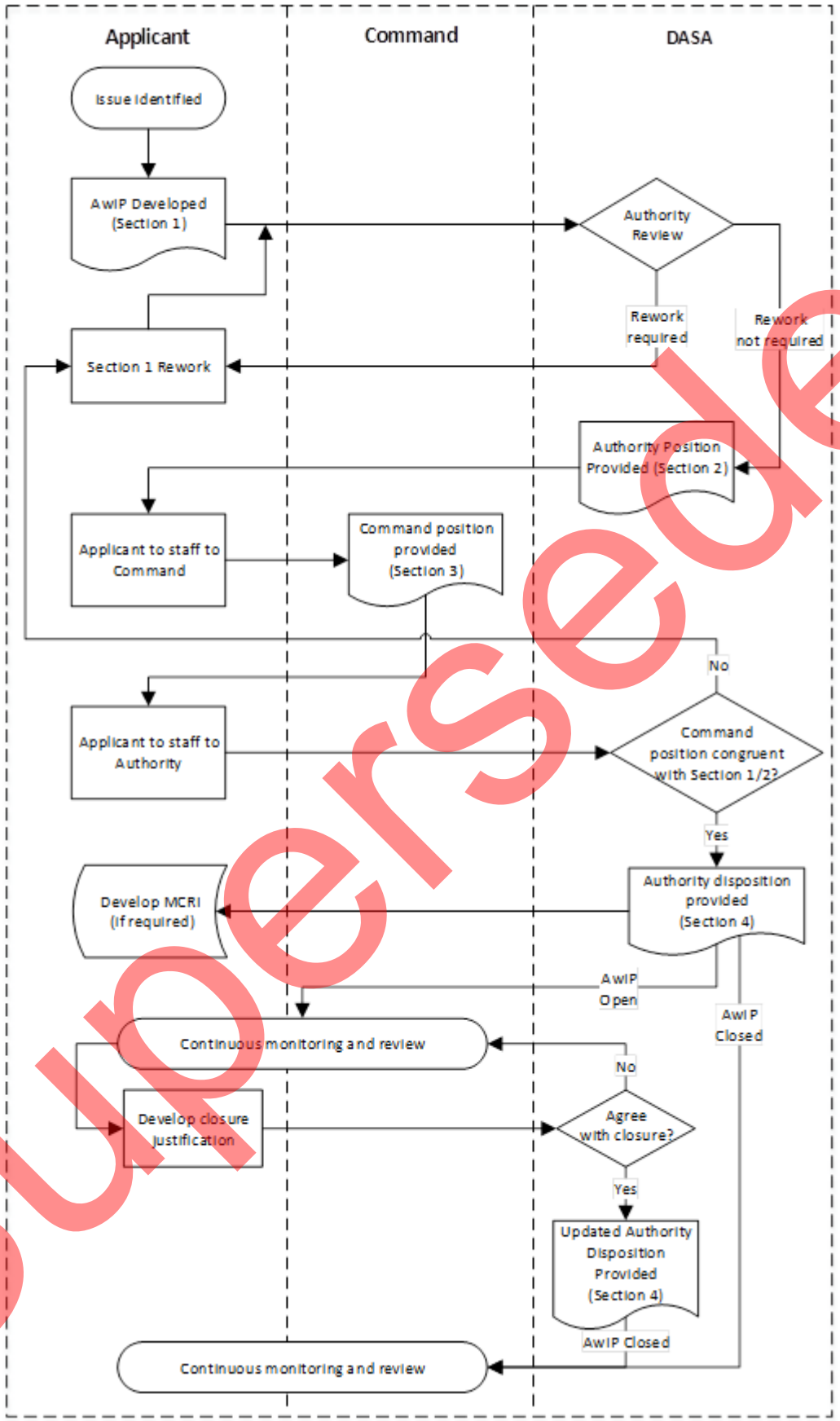
be integrated into standard safety management system practices to ensure appropriate management.

Version control

(q) Given the need for continuous monitoring and review, an 'Open' AwIP may move through several versions. Any changes to Section 1 should be resubmitted to the Authority for completion of a new Section 2 and later sections. Care must be taken to ensure rigorous version control.

Superseded

The AwIP Process



Superseded

AwIP management

(r) Command is responsible for managing AwIPs. That is, Command should:

1. maintain visibility of an AwIP's status and track its progress towards closure
2. ensure the seven-step risk management process in Section 1 is vigorously progressed
3. ensure that after completion of each Section, the AwIP is expeditiously forwarded to the organisation responsible for the following Section
4. ensure that reviews and AwIP updates occur as required
5. proactively maintain communications amongst relevant stakeholders
6. store the AwIP in an appropriate Objective folder
7. ensure that any alternative methods of risk management, such as platform hazard logs, are correctly established
8. (in-conjunction with the MTCHO) propose an AwIP should move to a different status providing suitable evidence to substantiate the proposal

AwIP assurance

(s) DASA does not actively monitor the progress that Command makes on specific 'Open' AwIPs. DASA's safety assurance role is limited to whether risks documented in the AwIP are being professionally managed. DASA may, during routine oversight, assure risks and controls are correctly captured within the relevant safety management system and that controls have been implemented and are subject to continual monitoring and review.

Additional Information

(t) Additional information and templates for AwIPs can be found:

1. in the AwIP template accessible from the DASA website -= DASA Templates page.
2. Additional guidance related to TCB tailoring is contained in Chapter 7.2 and associated annexes.
3. in the seven-step risk management framework detailed in AC 03/2018 Risk Management in the Defence Aviation Safety Program
4. DASA Point of Contact: DIA-DASA Type Certification Section dasa.typecert@defence.gov.au

Frequently Asked Questions

(u) How does one choose between an AwIP or other risk management form?

For non-complex aviation safety issues, another RDB form (such as the AE628) may be used instead of an AwIP provided the other form documents the seven-step risk management process. In choosing an alternative form to document an airworthiness issue the person raising the AwIP must be confident that DASA's concurrence with the risk management outcome is a 'given'. Given the 'decision to proceed' on these alternatives is not informed by a

Superseded

documented DASA position, the person raising the AwIP may be taking on some schedule risk when using alternative RDBs late in the process for gaining a certification.

(v) Are there any specific timings for when AwIPs should be raised?

No. DASA does not provide any specific timings on AwIPs, but they should be raised as soon as the need for an AwIP becomes evident. Processing times for AwIPs can be lengthy given multiple stakeholders. DASA's turnaround times for processing AwIPs are advised after their formal submission to the Authority.

(w) Do all TCB-related AwIPs result in Exception MCRIs?

No. TCB-related AwIPs should be used primarily to underpin Exception MCRIs but may occasionally be required for other types of MCRIs requiring risk decisions, for example some Special Condition MCRIs where risk decisions determine the certification requirement/ standard, or Equivalent Safety Finding MCRIs relying on implementation of operational controls. DASP Manual Volume 3 Chapter 7.2 Annex A provides more information.

(x) Is an AwIP always required to address a TCB non-compliance?

No. Equivalent risk management documentation may be used for some TCB non-compliances, depending on the context and complexity. See DASP Manual Volume 3 Chapter 7.2 Annex A for more information.

(y) Is a separate AwIP required for every risk?

No. A single AwIP can combine multiple risks provided they are closely related and their individual risk management remains clearly documented. An AwIP may be separated into sections covering risk or annexes used to provide individual evaluation of each risk.

(z) Can a MCRI be approved prior to closing the AwIP?

Yes. A MCRI may result in a level of risk above that represented by compliance with the Authority-prescribed design requirements and standards (ie Exception MCRIs and some Special Condition MCRIs). The MCRI can be approved against an 'Open' AwIP, provided Command has decided, in Section 3, to proceed with the elevated risk.

(aa) Can instruments be issued while an AwIP remains 'Open'?

Yes. Various instruments, such as a Military Type Certificate or Military Permit to Fly, can be issued while an AwIP remains 'Open'.

(ab) What is the preferred AwIP writing style?

Drafters should write AwIPs using clear, easy to understand, unambiguous, simple and concise language. The AwIP should avoid unnecessary verbiage and be precise enough to leave no uncertainty in the mind of the reader. Reference to other documents should not prevent readers from understanding the issues and their analysis.

(ac) Can a 'Closed' AwIP be reopened?

In rare circumstances, stakeholders may become aware of new information that puts in doubt the rationale for closing the AwIP. In such circumstances the AwIP may be reopened or a new AwIP raised.

(ad) Do AwIPs have a time limit for processing?

Superseded

No. AwIPs might stipulate requirements for closure and an associated timeframe but in some cases, they can remain open for years. For example, a long-term project may be established to investigate potential design solutions to resolve the risk. 'Open' AwIPs should be reviewed and updated regularly to ensure that the risk remains eliminated or otherwise minimised so far as reasonably practicable.

(ae) Who can access AwIPs?

Since AwIPs document the management of airworthiness or flight operations issues, DASA compliance assurance staff may periodically access AwIPs as part of their ongoing assurance. AwBs may also access AwIPs as part of their 'independent assurance function'. AwIPs are stored within the DASA's Objective folder relevant to the issue. A central Objective AwIP folder, using the alias functionality, collocates all AwIPs for ease of access.

(af) A risk control identified in an AwIP has been mandated by a DASA Airworthiness Directive (AD)—can the AwIP be closed if all other risk controls are implemented?

Yes. Provided all other AwIP risk controls are implemented, the AwIP could be closed. Even if the actions in the AD have yet to be implemented, the actions are mandatory and have been approved by DASA. Therefore, it is highly unlikely that DASA would wish to provide further assurance via the AwIP process for the specific risk control that is the subject of the AD.

(ag) What factors need to be considered for closure of older AwIPs?

Older AwIPs, especially those which pre-date the introduction of the DASR, will be in a different format to the four-section structure described above, and the risk assessment may not align with the contemporary 7-step risk management process. Nonetheless, it should still be clear which risk controls were assessed as reasonably practicable to inform the risk retention and decision-to-proceed.

Older format AwIPs will typically have a 'Proposed IP Closure Criteria' section, which may contain actions aside from implementation of risk controls. When justifying closure of older AwIPs, applicants should describe how the intent of all such actions has been met.

Applicants are also reminded of their Work Health and Safety (WHS) obligations when revisiting older AwIPs, especially obligations regarding continuous monitoring and review (ie consideration of changes in the hazard and risk context, and new possible controls).

Superseded

Annex D - Airworthiness Board Guidance

This content is under development. DASA is using a current aircraft acquisition to evolve the AwB focus, processes and data requirements, and this will lead to better guidance to the community on the submission requirements for AwBs for new aircraft. In the interim, interested parties should contact DASA directly for AwB submission requirements

Superseded

6.1.3. Acquisition of Non-Defence-Registered Aircraft

6.1 Introduction of New Defence Aircraft Capabilities

6.1.1 Introduction

Background

6.1.1.1 Defence periodically adds aircraft to its inventory to meet a capability need. The aircraft may be purchased or leased, crewed or uncrewed, Defence or civil registered. An essential prerequisite for Defence operation of a new aircraft, regardless of the acquisition arrangement, is for Defence to confirm that it is safe for flight. This encompasses the safety of aircraft occupants, other airspace users, and overflown people and facilities.

6.1.1.2 The acquisition process for a new aircraft begins during the capability development phase of the life cycle, where operational requirements are defined and potential solutions investigated. The Aviation Safety management process commences concurrently with the acquisition process, and remains inextricably linked. Decisions made early in the acquisition process can have an enduring effect on Aviation Safety.

6.1.1.3 For a Defence aircraft to be safe for flight, the aircraft to be appropriately designed, constructed, maintained and operated, as explained in DASP Manual Volume 3 Chapter 3, The Defence Aviation Safety Program. It is the responsibility of aircraft acquisition organisations in Defence, relevant in-service organisations and Defence industry partners, to ensure a Defence aircraft is safe for flight, both from the initial design and throughout its Defence lifecycle. In turn, the relevant Aviation Safety authorities need to gain assurance that the aircraft is safe for flight. If suitably assured, the Aviation Safety authorities can issue a range of 'authorisations', usually in the form of certificates, permits, approvals or licenses.

Purpose

6.1.1.4 This series of chapters aims to guide Defence aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the aircraft acquisition process.

6.1.1.5 This first chapter provides a general introduction to acquiring new Defence aircraft, including registration requirements, Aviation Safety responsibilities, engagement with Aviation Safety authorities and other common concepts.

Applicability

6.1.1.6 This chapter is applicable to the acquisition (whether through purchase, lease or other arrangement) of the following Defence aircraft:

1. Defence registered crewed aircraft
2. Non-Defence registered crewed aircraft (short term)
3. Defence registered certified uncrewed aircraft systems (UAS)

Superseded

6.1.1.7 While the concepts in this chapter are also broadly applicable to Open and Specific category (ie non-certified) UAS, the regulatory approaches for these UAS are substantially different to certified aircraft, so DASP Manual Volume 3 Chapter 10, Uncrewed Aircraft Systems, separately covers their acquisition.

Structure

6.1.1.8 This chapter will provide context for the next four chapters, which will individually cover the three different arrangements for Defence aircraft acquisitions listed in paragraph 6, and as shown in Figure 1.

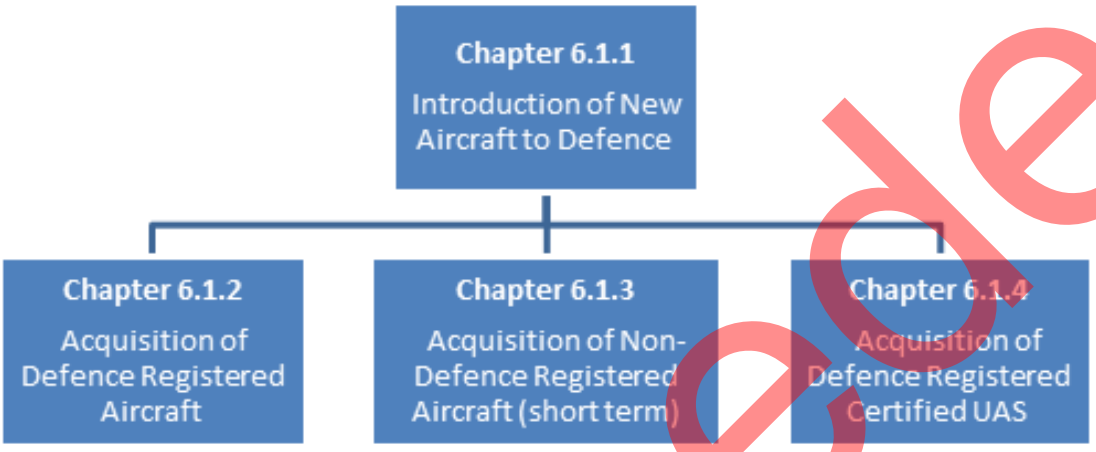


Figure 1: Chapter 6.1 structure

6.1.1.9 This chapter will also provide content that is common to the next four chapters, to avoid duplication.

Aircraft Registration

6.1.1.10 All Defence aircraft, apart from some non-certified UAS, must be included on the Register of a military or civil aviation authority. DASR separates these registrations into two categories; Defence registered aircraft and non-Defence registered aircraft. The latter are almost universally regulated by CASA. While other registrations are occasionally employed, they are always transitory arrangements[1].

6.1.1.11 A Defence registered aircraft is subject to Defence Aviation Safety Regulations (DASR) and DASA safety assurance oversight. An Australian civil registered aircraft, on the other hand, is subject to Civil Aviation Safety Regulations (CASR) and CASA safety assurance oversight as well as some limited DASA oversight.

6.1.1.12 When Defence is procuring an aircraft type that is also used under the civil regulatory framework, an important decision by the Capability Manager, required early in the acquisition process, is to determine whether the Defence aircraft will be Defence registered or civil[2] registered. This registration can have an enduring effect on Defence aviation capability, as summarised below:

1. **Defence registration.** Defence registration ensures the aircraft is within the exclusive jurisdiction of the DASR, which make specific allowance for:

   i. uniquely military roles, including weapons carriage and deployment, low flying, aerial delivery, clandestine flying, formation flying, transporting

Superseded

hazardous materials and dangerous goods etc — types of operations that may be heavily restricted or unsupportable under civil regulatory requirements

ii. flexibility in the approach to achieving compliance with the DASR

iii. the application of risk management where DASR compliance cannot be shown, provided a credible and defensible level of aviation safety performance is achieved

iv. Commanders to deviate from requirements (2) and (3) above in the event of compelling operational imperatives or emergencies.

DASA is experienced in regulating for the unique military operational context. Consequently, DASA is well-placed to advise Commanders on military aviation safety issues and to provide tailored independent safety assurance of military organisations and products.

2. **Civil registration.** Civil registration can initially be attractive to Capability Managers and acquisition organisations due to the simplicity of contractual and ongoing management, and potential faster introduction of the aircraft into service. However civil registration should only be considered for short term arrangements, or where an aircraft will not be considered a continuous 'State' aircraft. Complicating factors include that:

i. it can bind Defence to civil aviation safety regulations for design, maintenance and operation, and these regulations have not been customised to the unique military aviation context

ii. there may be a lack of risk-managed operational flexibility, which is the hallmark of Defence's aviation safety regulations

iii. it can bind Defence to the potential inflexibilities of the civil regulator

iv. there may be adverse diplomatic and security implications of Defence operating a non-Defence registered aircraft overseas.

6.1.1.13 Where a Capability Manager is considering civil registration for a temporary Defence aircraft, DASA should be engaged at the earliest practicable opportunity for consultation. Annex A presents a list of issues that should be explored during this engagement, to assist the Capability Manager in making an informed decision on Defence registration versus civil registration.

6.1.1.14 Annex B presents guidance on the structure and administration of the Defence Register.

Aviation Safety Responsibilities

6.1.1.15 DASP Manual Volume 1 states that aviation safety is a command responsibility, so commanders and managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.1.16 The responsibility for ensuring (ie making sure) a new Defence aircraft is safe for flight falls directly on the Defence acquisition organisations and the relevant in-service support organisations. This includes, amongst other things, ensuring:

1. the aircraft design is safe for flight in the intended role and operating environment (ie aircraft design and certification)

Superseded

2. the physical aircraft standard of construction meets that design (ie aircraft production)

3. arrangements are in place to ensure the design remains safe (ie continued airworthiness)

4. arrangements are in place to ensure the aircraft remains in a condition for safe operation (ie continuing airworthiness)

5. arrangements are in place to design future changes and repairs (ie aircraft design)

6. operators are able to safely operate the aircraft (ie flight operations).

6.1.1.17 The role of DASA, on the other hand, is to gain assurance that the above elements have been executed effectively.

Aviation safety authorisations

6.1.1.18 When assured of safety, the relevant military or civil aviation safety authority (whether DASA or CASA) may issue a range of authorisations, often in the form of certificates, permits, approvals or licenses. For Defence registered aircraft, the list of authorisations is expansive, potentially comprising up to 12 different types of organisational, product and personnel authorisations. For civil registered aircraft, CASA will issue the civil equivalents to some or many of these 12 authorisations. Chapters 6.1.2 to 6.1.5 explore the Aviation Safety authorisations that may be issued by DASA and CASA for each acquisition category.

6.1.1.19 While DASA does not issue authorisations for civil registered aircraft, DASA may require that the aircraft are included within the scope of the Military Air Operator (MAO), issue a relevant Operations Specification (OpSpec) and conduct limited safety assurance oversight.

6.1.1.20 **Planning and coordination.** Aviation Safety authorisations issued by DASA or CASA are a major milestone in the aircraft acquisition process. Establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with the appropriate Aviation Safety authority (DASA for Defence registered aircraft, and both CASA and DASA for civil registered aircraft) is therefore in the best interests of all parties.

6.1.1.21 Engagement should ideally commence as soon as the Defence acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[3]. Engagement should be well advanced before Defence publishes any tender documents (eg Requests for Tender, Foreign Military Sales requests, etc) that may later affect an authorisation.

6.1.1.22. For civil registered aircraft, CASA will provide guidance on how to achieve the civil authorisations that will be required. DASA will do likewise for the new OpSpec, if one is to be published. This development of this DASA authorisation is far from a trivial endeavour. Not only does it cover the flying management of the MAO and other operational systems for the new aircraft, it also assesses whether the entire aviation safety construct (inclusive of all CASA authorisations) is likely to support safe Defence aviation.

6.1.1.23 For Defence registered aircraft, DASA will provide guidance on how to achieve the required DASA authorisations. Some additional guidance is available through DASA-sponsored courses and website resources.

Superseded

6.1.1.24 Chapters 6.1.2 to 6.1.4 provide tailored guidance on how engage with the relevant Aviation Safety authorities, since this varies widely between civil and Defence registered aircraft, and crewed and uncrewed aircraft.

6.1.1.25 **Documented agreements.** DASRs do not mandate any formal plans or agreements for achieving DASA authorisations. However, it is a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage Aviation Safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.1.26 For both Defence and civil registered aircraft, DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies. It describes, amongst other things, the overarching acquisition strategy in the context of Aviation Safety and brings together the planned outcomes of the operational, technical, logistical and safety management activities.

6.1.1.27 The ASAMP should be drafted after the acquisition strategy solidifies, nominally following government acquisition approval, but before RFTs (or equivalent) are released. While ASAMPs have previously been drafted before initial contact with DASA has been made, this is rarely an efficient approach. The ideal time to draft the ASAMP is soon after the initial meeting with DASA, given that meeting will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since this is the stage where the scope of most authorisations should be clear.

6.1.1.28 Chapters 6.1.2 to 6.1.5 provide guidance on the production of ASAMPs, tailored to the particular acquisition arrangement. ASAMP content varies widely between civil and Defence registered aircraft, with the latter including plans for achieving up to 12 different DASA authorisations. While the differences between crewed and uncrewed aircraft ASAMPs are less significant, the latter will focus on the unique challenges of separating the crew from the aircraft and the additional transitional authorisations that may be available for certified UAS.

Common Concepts

6.1.1.29 The next four chapters are dedicated to the four acquisition arrangements listed at Paragraph 6.1.1.6. To avoid duplication in those chapters, the remainder of this chapter will introduce several concepts that are likely to be common to each acquisition arrangement.

Recognition

6.1.1.30 Aviation Safety authority may acknowledge that products, services and data received from another Aviation Safety authority and the respective system they oversight are compatible within their own Aviation Safety framework. This concept, known as ‘recognition’, is extensively employed for new Defence aircraft acquisitions. Regardless of whether a new aircraft is Defence registered or not, recognition will almost certainly be applied for aircraft design and production. For non-Defence registered aircraft, recognition will also contribute to Defence’s confidence in aircraft maintenance and operation. DASP Manual Volume 3 Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

6.1.1.31 Where recognition is being considered for a certified UAS, DASA advice should be sought. Certified UAS are not yet commonplace, so the competence and capability of international Aviation Safety authorities in regulating and oversighting certified UAS is still evolving.

Superseded

Statement of Operating Intent and Usage (SOIU)

6.1.1.32 DASRs require all Defence registered aircraft and certified UAS (and certain other UAS when directed by the Authority) to have a Statement of Operating Intent (SOIU) that has been approved by the relevant Environmental Commander and DASA. The SOIU describes the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type.

6.1.1.33 Development of an SOIU is not mandatory for a non-Defence registered aircraft, but may assist MAOs with establishing the operational context of their intended operations, to assist with identification of any additional safety controls required to provide an equivalent level of safety to that of Defence registered aircraft.

6.1.1.34 Annex C presents further information and development guidance for SOIUs.

Independent Review of Aviation Safety

6.1.1.35 DASP Manual Volume 3 Chapter 6, Independent Review of Aviation Safety, provides information on the scope and role of Airworthiness Boards (AwBs) within the framework of capability acquisition.

6.1.1.36 Historically, AwBs were identified as a 'gate' for issuance of some DASA authorisations. The contemporary role of the AwB in the acquisition process is to complement the role of the regulator in addressing parts of the 'system of systems' that are not adequately covered through regulatory oversight activity. DASA identifies that this increases flexibility and reduces the impost on the regulated community.

6.1.1.37 Chapters 6.1.2 to 6.1.4 provide guidance on the documentation package provided to Introduction into Service (IIS) AwBs for each acquisition type. The documentation will commonly consist of:

1. the extant submissions for the relevant DASA authorisations
2. an updated ASAMP which reflects the status of the acquisition program, details and plans for outstanding activities, and impact statements and associated risk management for outstanding activities
3. checklists and other artefacts.

6.1.1.38 An AwB is commonly convened prior to the first operation of a Defence registered aircraft, due to the often complex nature of organisational, risk management and other elements. Notwithstanding the aforementioned, there is no regulatory impediment to commencing limited operations, commensurate with risk, prior to the conduct and reporting of an IIS AwB. Progressive AwBs may be convened as the organisations and operational capabilities evolve.

6.1.1.39 An IIS AwB may be less common for non-Defence registered aircraft given that Defence aircraft that are continuous 'State' aircraft should be Defence registered. When determining whether an AwB is required, the Defence AA may take into account the complexity of support arrangements, whether Defence's operations are closely aligned to civil norms, and other similar factors.

Annexes:

(a) Aircraft Registration Discussion Points

(b) Defence Registration

Superseded

(c) Statement of Operating Intent and Usage (SOIU)

6.1.2 Acquisition of (Crewed) Defence Registered Aircraft

Introduction

6.1.2.1 Aviation safety is a command and management responsibility. Commanders and senior managers are accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

6.1.2.2 Provided the aircraft and its support and operating arrangements meet the relevant Defence Aviation Safety Regulation (DASR) requirements, DASA may issue a range of 'authorisations', in the form of certificates, permits, approvals or licenses. These authorisations provide confidence to both the Capability Manager and the Australian Government that the aircraft is capable of safe flight.

6.1.2.3 While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that additional guidance is needed if safety risks are to be efficiently and effectively eliminated or otherwise minimised so far as is reasonably practicable.

Purpose

6.1.2.4 This chapter guides Defence's aircraft acquisition organisations, relevant in-service organisations and Defence industry partners through the aviation safety requirements and recommended practices during the acquisition (whether through purchase, lease or other arrangement) of crewed aircraft that will be Defence registered.

Regulatory outcomes from the acquisition process

6.1.2.5 For a new Defence registered aircraft to operate, Command must ensure it is safe for flight. Command achieves this by ensuring the aircraft are designed, constructed, maintained and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation. In turn, if suitably assured of safety, DASA may issue a range of authorisations. Depending on the acquisition and support arrangements, this can extend to 12 different types of organisational, product and personnel authorisations, as follows:

1. organisational authorisations:
    i. Military Air Operator (MAO)
    ii. Military Design Organisation (MDO)
    iii. Military Production Organisation (MPO)
    iv. Approved Maintenance Organisation (AMO)
    v. Continuing Airworthiness Management Organisation (CAMO)
    vi. Maintenance Training Organisation (MTO)
    vii. Military Type Certificate Holder (MTCH) (currently an implicit authorisation)
2. product authorisations:

Superseded

i. Military Type Certificate (MTC) and associated Type Certificate Data Sheet (TCDS)

ii. Military Permit to Fly (MPTF)

iii. Aircraft Management Programme (AMP)

iv. Military Certificate of Airworthiness (CoA)

Note: *In addition, it may include a range of niche authorisations, for example a product conformity agreement, master minimum equipment list, and so on.*

3. personnel authorisations:

i. Military Aircraft Maintenance Licence (MAML)

Note: *DASA directly authorises certain management personnel within approved organisations. However, those authorisations are considered to be part of the organisational approval process in this chapter, so they are not separately listed here.*

6.1.2.6 Figure 1 summarises the range of DASA authorisations that are usually relevant to a new aircraft acquisition, grouped according to their relevance to aircraft design, construction, maintenance or operation. The subsequent paragraphs separately explore each group.

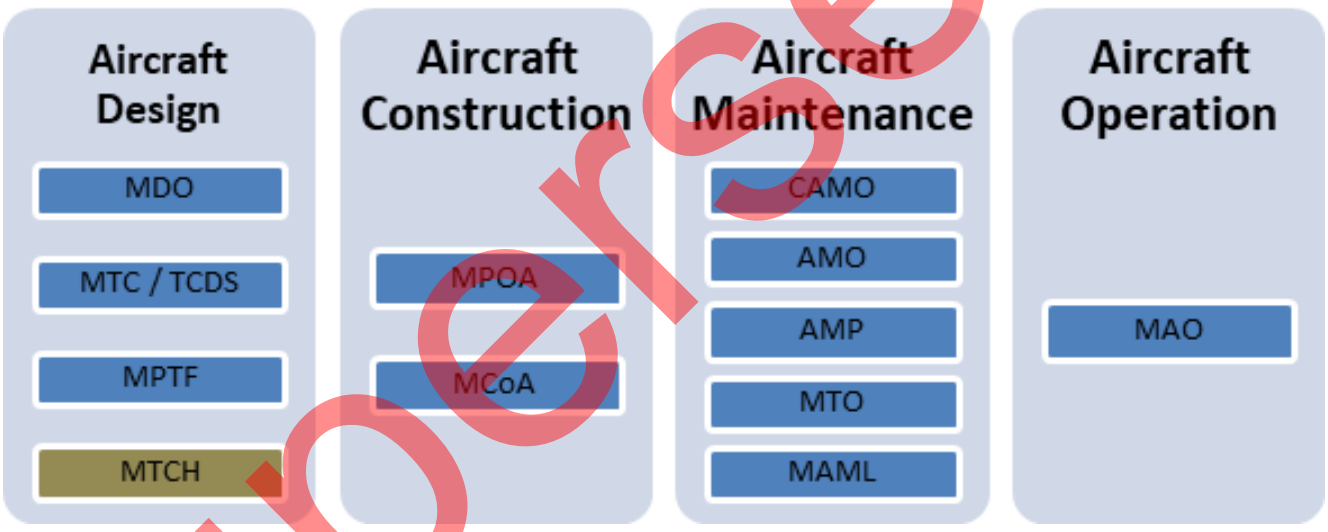


Figure 1: DASA authorisations relevant to Defence aircraft acquisitions[4]

Aircraft design (and certification)

6.1.2.7 New Defence crewed aircraft will normally be civil or military 'off-the-shelf' aircraft that are subsequently modified to meet Defence's capability requirements. Ensuring the final aircraft design is safe for flight in Defence's intended Configuration, Role and Environment (CRE) is a critical step in the acquisition process. Four separate DASA authorisations are relevant to this process, design, construction, maintenance or operation.

6.1.2.8 **Military Design Organisation (for initial aircraft design).** An organisation that has been approved by DASA to provide aircraft design services for a new Defence aircraft is termed a Military Design Organisation (MDO). These MDOs may be a military or industry organisation, and may be located in Australia or overseas. MDOs are often required for the design of new Defence aircraft,

Superseded

although as explored in the next four paragraphs, this requirement can be reduced, or even eliminated, in some circumstances.

6.1.2.9 **Military Type Certificate.** The Defence type certification process is central to confirming that the aircraft design is safe for Defence's intended Configuration, Role and Configuration (CRE) for the aircraft. At its core is the Type Certification Basis (TCB), which is a DASA-agreed set of airworthiness design requirements, including an airworthiness code and other standards, and tailoring to both as required.

6.1.2.10 At its extreme, type certification requires a DASA-approved MDO to create an aircraft design that complies with the TCB, and to produce evidence that demonstrates this compliance. In turn, DASA examines the evidence on a non-exhaustive basis, and if assured of safety, issues a Military Type Certificate (MTC)[5] and associated TCDS.

6.1.2.11 There is, however, a shortcut to the above approach that is employed for most Defence aircraft acquisitions. When Defence is procuring off-the-shelf aircraft or equipment, the Applicant[6] may seek relief from the need to develop new compliance demonstration evidence, to the extent an extant certification by a recognised National or Military Aviation Authority (NAA/MAA) is relevant to Defence's CRE. This is known as 'recognition of prior certification'. In rare circumstances, DASA can certify an entire new aircraft based solely on the prior certification of another NAA/MAA.

6.1.2.12 More commonly, however, Defence aircraft acquisitions employ a combination of the above two processes. That is, recognition of prior certification is used to cover the design of the off-the-shelf aircraft, and a DASA-approved MDO designs the Defence-unique modifications and produces the requisite compliance demonstration evidence. Sometimes another NAA/MAA may agree to certify some or all of the Defence-unique modifications, which may reduce or even remove the need for a DASA-approved MDO.

6.1.2.13 **Military Type Certificate Holder.** The MTC for a new Defence aircraft is issued by DASA to the Military Type Certificate Holder (MTCH), who takes on responsibility for ensuring the 'continued airworthiness' of the design[7]. This role is normally assigned to the relevant Defence SPO, who will implement standing arrangements with other Defence organisations, industry partners, and perhaps other militaries, to support the function. Amongst other things, the MTCH organisation is responsible for implementing systems for collecting, investigating and analysing aircraft occurrences which may affect its airworthiness, and holding (or providing access to) aircraft design information.

6.1.2.14 Note that DASA does not currently issue an explicit organisational approval for MTCHs, although this may change. Instead, the proposed MTCH arrangement is evaluated by DASA as part of its deliberations on whether to issue a MTC.

6.1.2.15 **Military Permit to Fly.** It is possible for DASA to issue a MTC for a new aircraft type immediately upon its addition to the Defence Register. More likely, however, there will be a period where the aircraft is not yet ready for a MTC because, for example:

1. the aircraft design is still under development
2. compliance demonstration evidence is still being created or compiled
3. Defence's MTC will leverage off the certification of another NAA/MAA, which is yet to be finalised

Superseded

6.1.2.16 DASA can issue a Military Permit to Fly (MPTF) to a MAO[8] in advance of the MTC if satisfied the aircraft design substantially complies with its agreed TCB, the configuration of the subject aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions and for specified purposes, and any elevated risk has been justifiably retained. However, since the MPTF will usually impose (often significant) risk controls that limit the operation of the aircraft, extended operations under an MPTF are not common.

6.1.2.17 **Military Design Organisations (for in-service support).** Finally, throughout an aircraft's operational life, design changes are inevitable to remedy design defects, address obsolescence issues, design repairs, implement capability enhancements, and so on. These design changes will often be the purview of one or more DASA-approved MDOs, which are typically (but not essentially) the same as the MDOs that support the MTCH function.

6.1.2.18 Ultimately, both the MTCH and Continuing Airworthiness Management Organisation (CAMO – see below) must be able to demonstrate that sufficient design support arrangements are in place to maintain the safety of the aircraft[9], before a new aircraft is operated on the Defence Register. Depending on the aircraft acquisition contract, this design support function might initially be provided by the aircraft Original Equipment Manufacturer (OEM); if so, the in-service MDOs might not be needed immediately.

6.1.2.19 **Summary.** Summarised, the four DASA design-related authorisations that are usually relevant to aircraft acquisitions are presented in Figure 2. The MTCH is depicted in a different colour, to show that DASA does not (yet) directly issue an MTCH approval.

Figure 2: DASA authorisations related to aircraft design

6.1.2.20 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MDOs, MTCs, MPTFs and MTCHs.

Aircraft production (or construction)

6.1.2.21 A MTC focuses on the safety of an aircraft's design. It does not consider the subsequent manufacture and assembly of the design, which is the purview of aircraft production (or

Superseded

'construction' in historic Defence parlance). The two DASA authorisations relevant to new aircraft production are Military Production Organisations and Military Certificates of Airworthiness.

6.1.2.22 **Military Production Organisation.** A Military Production Organisation (MPO) is a DASA-approved organisation that can manufacture and assemble parts, appliances, aircraft, engines or propellers to approved design data[10]. In the context of a Defence aircraft acquisition, MPOs can manufacture and assemble both the baseline aircraft (often called the 'green' aircraft) and the Defence-unique modifications to the green aircraft. They may be the same organisation, or there may be multiple different MPOs.

6.1.2.23 More commonly for new aircraft, however, Defence leverages the oversight provided by a DASA-recognised NAA/MAA of certain production organisations. This can reduce, or even eliminate, the need for DASA-approved MPOs.

6.1.2.24 **Military Certificate of Airworthiness.** As noted previously, a MTC is issued for an aircraft type. A separate DASA authorisation needs to subsequently be issued for each aircraft tail, namely the Military Certificate of Airworthiness (MCoA)[11], once DASA is satisfied the produced aircraft conforms to the design covered by the MTC. Central to DASA issuance of a MCoA is evidence that each product, part or appliance conforms to the approved design data and is in condition for safe operation.

6.1.2.25 A MCoA cannot be issued prior to the MTC. Where a new Defence aircraft is to be flown under a MPTF prior to the issue of a MTC, the MPTF effectively provides the function of the MCoA. As part of the process for seeking a MPTF, an applicant will need to demonstrate that the produced aircraft does indeed conform to the currently approved design data.

6.1.2.26 **Summary.** Summarised, the two DASA production-related authorisations that are usually relevant to new aircraft acquisitions are presented in Figure 3.

Figure 3: DASA authorisations related to production

6.1.2.27 DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MPOs and MCoAs.

Superseded

Aircraft maintenance (continuing airworthiness)

6.1.2.28 While Defence has long used the colloquial term of 'aircraft maintenance' to cover airworthiness activities beyond aircraft design and production, the DASRs purposely use the more expansive term of 'continuing airworthiness'. Aircraft maintenance is any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component. Continuing airworthiness encompasses this, plus maintenance management, maintenance training and maintenance licensing. For completeness, this section will use the term 'continuing airworthiness'.

6.1.2.29 Robust continuing airworthiness arrangements must be in place prior to the operation of a new Defence aircraft. Once assured of the sufficiency of these arrangements, DASA may issue three relevant organisational approvals, namely Continuing Airworthiness Management Organisations, Approved Maintenance Organisations and Maintenance Training Organisations. DASA may also approve Aircraft Maintenance Programmes and issue Military Aircraft Maintenance Licences to eligible personnel.

6.1.2.30 **Continuing Airworthiness Management Organisation.** Continuing Airworthiness covers all processes that ensure an aircraft continues to comply with initial airworthiness requirements and supports the ongoing validity of the aircraft's MCoA. The Continuing Airworthiness Management Organisation (CAMO), while not directly responsible for actual aircraft maintenance, is responsible for engaging organisations to conduct design and maintenance services. The CAMO will:

1. engage MDO(s) for design services as required
2. engage the MTCH for any matters that impact the aircraft's type design and type certification under MTC or an individual aircraft's CoA]
3. task AMOs to maintain products (aircraft, engines and propellers), parts and appliances and
4. provide governance and oversight to organisations performing DASR M functions on its behalf.

6.1.2.31 In most cases, the acquisition of a new aircraft type will not result in the creation of a new CAMO; rather, the scope of an extant CAMO will be expanded to include the new aircraft type. The presence of a suitable CAMO is integral to DASA's approval of a new MAO, or adding an additional aircraft to an extant MAO's scope.

6.1.2.32 **Aircraft Maintenance Organisations.** DASR provides two avenues for the maintenance of an aircraft and its components. The first is a DASA-approved Approved Maintenance Organisation (AMO), and the second is 'another maintenance organisation accepted by DASA'. A combination of both is usually employed for Defence aircraft.

6.1.2.33 An AMO is an organisation approved by DASA to conduct aircraft maintenance activities. This includes all actions required for restoring and maintaining an item in a serviceable condition including servicing, repair, modification, overhaul, inspection and determination of condition to maintain aircraft safety and airworthiness. AMOs may be a military or Defence Industry organisation, may be located in Australia or overseas, and may encompass one or multiple aircraft types. New Defence aircraft may be supported by one or several AMOs.

6.1.2.34 DASR Part M makes provision for maintenance services to be consumed from other maintenance organisations that are accepted by DASA. While the regulation infers that DASA explicitly accepts each of these maintenance organisations, this is not normally the case. Rather,

Superseded

DASA will automatically accept a maintenance organisation provided it is oversighted by a NAA/MAA that is 'recognised' as competent by DASA, and provided the CAMO ensures the conditions and caveats on the relevant 'recognition certificate' are met. Recognition certificates for each NAA/MAA recognised by DASA are available on DASA's website.

6.1.2.35 Prior to operation of a new Defence aircraft, the CAMO must demonstrate that arrangements are in place to maintain the aircraft in an airworthy condition. In limited circumstances, DASA may agree to the temporary absence of some maintenance arrangements, but only where this does not affect the near-term support of the aircraft.

6.1.2.36 **Aircraft Maintenance Programme.** An Aircraft Maintenance Programme (AMP) describes the scheduled maintenance tasks, their frequency of completion, the associated maintenance procedures, and so on, necessary to preserve the airworthiness of the aircraft. For aircraft acquisition projects, an initial AMP must be approved by DASA prior to the conduct of any maintenance activities. Maintenance activities can in some cases pre-date flying operations on the Defence Register, since they include aircraft preservation and other maintenance tasks required to prepare the aircraft for operation.

6.1.2.37 **Military Aircraft Maintenance Licenses.** AMOs require some personnel to hold particular categories of Military Aircraft Maintenance Licences (MAMLs). Furthermore, in order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML requires their licence to be endorsed with the relevant aircraft type ratings. As part of the AMO approval process for a new aircraft, the AMO will need to demonstrate that its personnel hold sufficient and applicable MAMLs.

6.1.2.38 **Maintenance Training Organisation.** A Maintenance Training Organisation (MTO) conducts training and examinations for maintenance personnel as specified in DASR 66. While a new MTO would rarely be required for a new Defence aircraft, an extant MTO would need to demonstrate its competence to conduct the type/task training and assessments for the new aircraft.

6.1.2.39 **Summary.** Summarised, the five DASA authorisations related to continuing airworthiness (of which maintenance is a component) of Defence aircraft acquisitions are presented in Figure 4.

Continuing Aircraft Management Organisation (CAMO)	Approved Maintenance Organisation (AMO)	Aircraft Maintenance Programme (AMP)	Maintenance Training Organisation (MTO)	Military Aircraft Maintenance Licence (MAML) + Type Rating
•A CAMO is an organisation approved by DASA that ensures on behalf of the MAO, that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.	•An AMO is an organisation approved by DASA to conduct aircraft maintenance activities.	•A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.	•An MTO is an organisation approved by DASA to conduct aviation technical training or military aircraft type rating training and examinations	•A MAML is a categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Figure 4: DASA continuing airworthiness-related authorisations

Superseded

6.1.2.40 DASPMAN Volume 3 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into CAMOs, AMOs, AMPs, MTOs and MAMLs.

Aircraft operation

6.1.2.41 A Military Air Operator Certificate (MAOC) is the principal authorisation granted by DASA to conduct military air activities. Each aircraft type operated by the MAO is authorised by a separate DASA-issued Operations Specification (OpSpec) annex. The OpSpec annex details, amongst other things, key positions of the MAO, operating provisions, roles and tasks, specific approvals, and any limitations or conditions imposed by DASA.

6.1.2.42 The relevant OpSpec annex is required before first flight of the aircraft by the MAO[12]. DASA will issue the OpSpec annex once assured that the necessary Fundamental Inputs to Capability (FIC) elements, as well as quality and safety management systems, are in place to support intended operations.

6.1.2.43 Preparing a MAO to take on a new Defence aircraft can be a substantial undertaking. Amongst other things, for the new aircraft type the MAO will need to:

1. define the operating intent and usage for the aircraft through an approved Statement of Operating Intent and Usage (SOIU)
2. ensure arrangements are in place for maintaining the airworthiness of the aircraft through a CAMO and AMOs
3. implement the multitude of systems needed to manage Operations personnel and Air operations
4. produce/accept Orders, Instructions and Publications (OIP)[13]
5. establish an Aviation Safety Management System (ASMS).

6.1.2.44 Implementing these requirements, even for an existing MAO, is likely to require considerable planning and effort. Consequently, DASA recognises that a graduated capability growth plan for operational authorisations may be required. The Aviation Safety Acquisition Management Plan (ASAMP - see Chapter 6.1.1 and later in this chapter) is a suitable repository for reflecting the status of the acquisition program, including details of work completed, re-programing of remaining activities and risk management for the incomplete tasks.

6.1.2.45 **Summary.** Summarised, the singe DASA flight operations-related authorisation relevant to aircraft acquisitions is presented in Figure 5.

Superseded

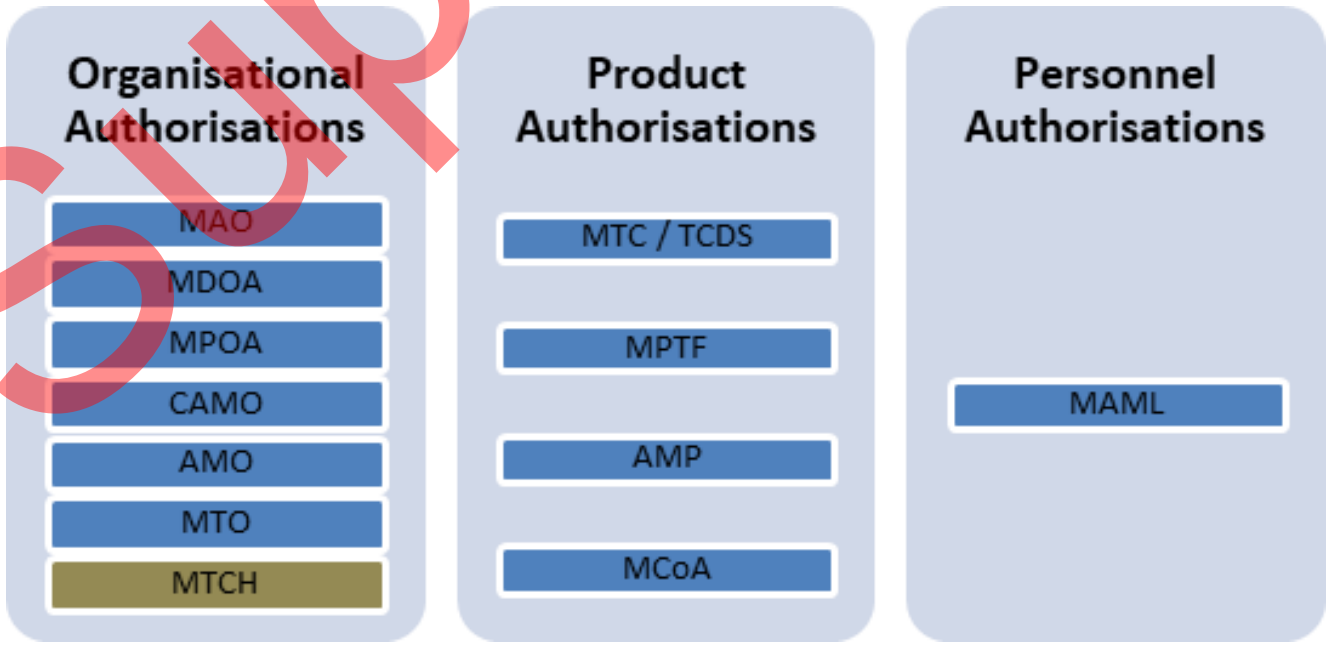
Figure 5: DASA authorisations related to aircraft operations

6.1.2.46 Chapter 5.3, Aviation Safety Authorisations, provides additional insight into MAOs.

Summary

6.1.2.47 This section has presented an overview of the DASA authorisations that may be relevant to new aircraft design, construction, maintenance and operation. Depending on the acquisition arrangements and the aircraft role, some authorisations might not be required.

6.1.2.48 The diagram at the start of this section (Figure 1) summarised all of the possible DASA authorisations according to whether they were relevant to new aircraft design, construction, maintenance or operation. However, another way of grouping them is according to whether they are organisational, product or personnel authorisations, as shown in Figure 6.



Superseded

Figure 6: DASA authorisations for new aircraft (grouped by category)

6.1.2.49 This grouping has the advantage that the eight organisational authorisations all use substantially the same processes for application and approval, and the three product authorisations have strong synergies. Consequently, for simplicity, this grouping will be used in the next section.

Processes, Plans and DASA Interaction

6.1.2.50 The previous section presented an overview of the DASA authorisations that may be relevant to new aircraft acquisitions. While the respective DASRs define the required safety outcomes for these DASA authorisations, history has shown that achieving the authorisations can be a complex and protracted journey. This section guides the reader though the process of achieving these DASA authorisations.

6.1.2.51 Figure 7 shows how the various DASA authorisations usually fit onto a project timeline. The vertical stripes present four significant milestones for introducing a new aircraft to Defence, the items above the dashed line show DASP-related project and Command activities, and the items below the line show the DASA authorisations. A time scale has purposely not been included, because this can vary enormously between aircraft acquisitions.

Superseded

Figure 7: Common project timeline for DASA authorisations

6.1.2.52 The elements below the dashed line can broadly be grouped into five activities, as shown in Figure 8. With the exception of Activity 1, the remaining activities are rarely sequential; more often than not Activities 2 and 3 are executed concurrently, and several activities may be cyclic.

Superseded

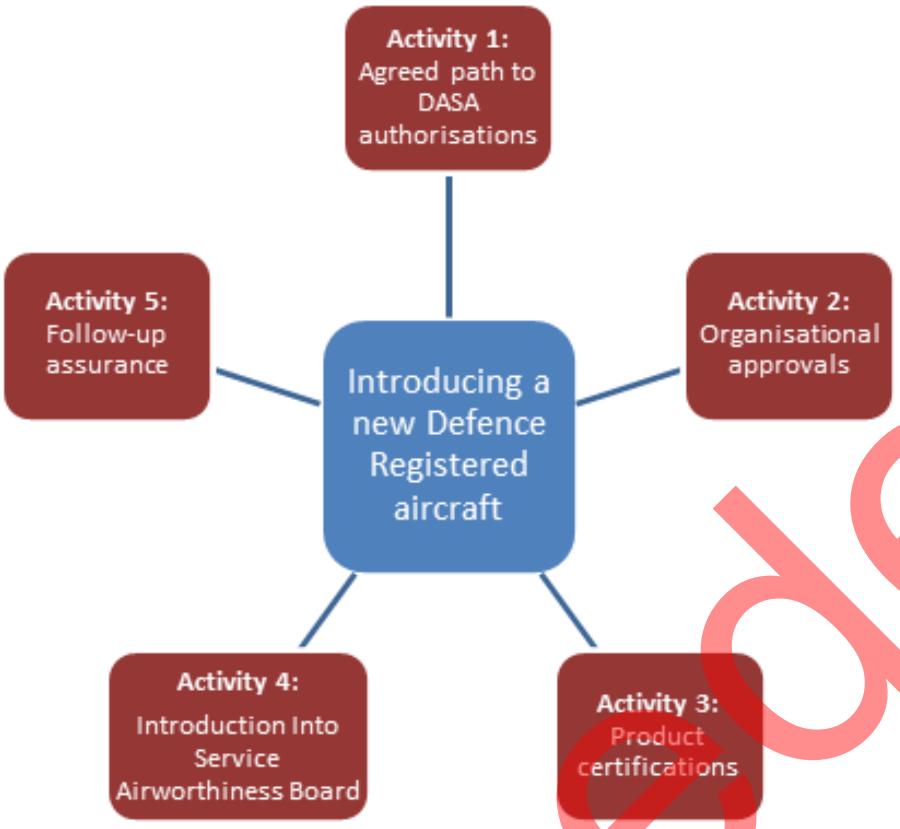


Figure 8: Activities in introducing a new Defence aircraft

6.1.2.53 Each of these five activities from Figure 8 is explored below.

Activity 1: Agreed path to authorisations

6.1.2.54 A major milestone in the aircraft acquisition process is the achievement of a range of DASA authorisations. However, establishing the contracts, systems and people to merit each authorisation is usually complex, with considerable potential to waste time and resources. Effective engagement with DASA is therefore in the best interests of all parties.

6.1.2.55 **Initial engagement.** Engagement should ideally commence as soon as Defence's acquisition organisation has a reasonable view on the candidate aircraft, the need for Defence-unique design changes, and the probable operating and support constructs[14]. Engagement should be well-advanced before Defence issues any tender documents (eg Requests for Tender, Foreign Military Sales Letter of Requests, etc) that may later affect an authorisation.

6.1.2.56 The initial engagement should involve DASA specialists, the Defence acquisition organisation, and capability manager representatives. If known, the Defence and industry organisations that will support the aircraft could also participate. Key outcomes will be:

1. a shared understanding of the project scope and schedule, candidate aircraft and the likely scope of Defence-unique design changes

Superseded

2. initial views on which of the seven DASA organisational approvals are likely to be needed and, for those that may not be needed, agree on the alternative means of achieving the same safety outcomes

3. initial views on how the aircraft might achieve an MTC, including how current or future certifications by DASA-recognised national or military airworthiness authorities (NAA/ MAAs) might contribute

4. initial views on whether an MPTF might be required to allow for test and other flying prior to the issue of an MTC

5. DASA should provide a management overview of each likely DASA authorisation, including: key milestones, common approval timeframes, recommended DASA collaboration, availability of training and other guidance material, and so on.

6.1.2.57 Annex A presents an expanded version of the above list, which can be used as a set of talking points for this initial engagement. Depending on the acquisition strategy, some of the details may initially be sparse. If so, further engagement should be scheduled for when the information is likely to become available, but still before releasing RFTs or equivalent documents.

6.1.2.58 **Documented agreement.** As noted in Chapter 6.1.1, DASRs do not mandate a plan or agreement for achieving DASA authorisations. It is, however, a practice that DASA highly recommends, given the substantial complexities in establishing the organisations and systems to manage aviation safety, and therefore the potential impacts (both positive and negative) on cost and schedule - and ultimately Defence capability.

6.1.2.59 DASA advocates the production of an Aviation Safety Acquisition Management Plan (ASAMP). The ASAMP is an iterative agreement between Applicants and DASA on the path to achieving DASA authorisations, and supports commanders and managers in accounting for parallel lines of effort and cross-regulation dependencies.

6.1.2.60 Annex B presents the suggested content and management arrangements for an ASAMP. Summarised, it suggests the main body of the ASAMP should describe the overarching aviation safety acquisition strategy and bring together the planned outcomes of the operational, technical, logistical and safety management activities. It should also describe the management of flight operations during acquisition, particularly if operations are to commence under an MPTF.

6.1.2.61 Annex B also suggests the ASAMP should include a series of annexes, with individual annexes dedicated to each DASA authorisation. Each annex could be sponsored by the relevant Applicant for the DASA authorisation, and could form an agreement between DASA and the Applicant on the path to the particular authorisation. For simple acquisitions, the annexes might directly present the information[15]. For more complex acquisitions, particularly where there are a range of Applicants for the various DASA authorisations, the annexes might merely contain a link to a planning document that is drafted and managed by the respective Applicant. Either way, the annexes should be 'modular', whereby each annex is configuration managed and approved separately to the main body of the ASAMP.

Superseded

6.1.2.62 The ASAMP should be drafted after the acquisition strategy solidifies (usually post Government approval), but before RFTs (or equivalent) are released. The ideal time to draft the ASAMP is usually soon after the initial engagement with DASA, and in fact that engagement will influence much of the ASAMP content. The ASAMP would normally be updated after contracts and agreements are signed, since the path to most DASA authorisations should be clear.

6.1.2.63 Once contracts and agreements are signed, the main body of the ASAMP need only be updated when there is a marked change in the acquisition strategy or high-level schedule for the project. The annexes, on the other hand, will probably be updated more frequently, particularly in the earlier stages of the project as knowledge and plans evolve.

6.1.2.64 **Ongoing engagement.** DASA's experience is that three forms of engagement should be maintained throughout the project lifecycle, as follows:

1. Periodic major stakeholder engagements, expanding on the initial engagement suggested previously in this section. This should occur throughout the acquisition project lifecycle, usually when significant milestones are approaching

2. Frequent coordination and status updates between senior project management staff (commonly the CASG Project Engineering Manager, the CM Transition Team lead, etc), and DASA's operational and technical leads for the acquisition

3. Engagement as required between each of the Applicants for a DASA authorisation and the respective DASA specialist.

6.1.2.65 **DASA assistance with contract reviews.** There is no DASR requirement for DASA to be engaged in seeking offers (eg RFT or equivalent), selecting the successful tenderer, negotiating the contract, and signing the contract. However, where a contract element may one day affect a DASA authorisation, prudent DASA involvement can reduce project cost and schedule risk. Areas where DASA can contribute include:

1. Prior to RFT (or equivalent) issue:

    i. confirming the RFT requirements for organisational approvals are appropriate for aircraft acquisition and/or in-service support

    ii. confirming the RFT airworthiness design requirements (including airworthiness codes and other standards), and proposed approach to aircraft certification, present a suitable pathway to MTC

    iii. confirming the RFT aircraft production arrangements present a suitable pathway to issue of MCoA

    iv. confirming aircraft registration pathways, particularly for significant modifications to a green aircraft by a third party

Superseded

v. providing expert input to specialist aircraft design technology requirements, such as aircraft structural integrity (ASI) design and in-service management systems.

2. For RFT assessment:

i. If any of the above RFT items seek preliminary plans for DASA organisational approvals or product certifications, then DASA can participate in the assessment of those plans

ii. otherwise, while the Defence acquisition organisation will conduct the tender evaluation, DASA staff are available for on-call advice and assistance as required[16]

3. For contract negotiation: DASA staff would rarely be directly involved in contract negotiations, but are available for on-call advice and assistance as required.

4. Final contract review: DASA does not review the mature contract prior to signature, but is available for advice and assistance as required.

6.1.2.66 **Delegations.** During the project lifecycle, organisations may elect to delegate their Command responsibilities, for example the appointment of the senior operator within the project transition team to make operational decisions in relation to the project. Once notified of the delegation, DASA will treat the decisions and approvals of the delegate as if the accountable manager had issued them.

6.1.2.67 Later in the project lifecycle, usually just before MTC issue, a 'Platform DoSA' will need to be appointed by DASA. The Platform DoSA role is normally delegated to the incumbent Defence CENGR of the platform MTCH organisation, and is responsible for assurance of MTCH actions with respect to reportable occurrences, issue of MCoAs, approval of flight conditions and issue of Airworthiness Directives. DASP Manual Volume 3 Chapter 4.3, Delegates of the Safety Authority, provides additional information.

Activity 2: Organisational approvals

6.1.2.68 Professional aircraft design, construction, maintenance and operation organisations are cornerstone to aviation safety. Implementing the required organisations for a new aircraft, and obtaining DASA approval of each organisation, is usually a significant activity for both the Applicants and DASA. This section explores the planning, establishment and assessment of new DASA-approved organisations.

6.1.2.69 **Planning.** As noted in Activity 1, the ASAMP should include a planning annex for each organisational approval. The ASAMP should plan for the organisational approvals to be achieved well prior to their need date, which are likely to be as follows:

Superseded

1. MAO: DASA authorisation is required prior to the first operation of the aircraft by the MAO[17]. This authorisation is reflected in DASA's issue of an OpSpec annex for the new aircraft

2. MDO:

   i. (for initial aircraft design): Required prior to design changes to the green aircraft, if those changes are not to be certified by a recognised NAA/MAA

   ii. (for in-service support): Required prior to first flight on the Defence Register, unless DASA has agreed to an alternative interim support arrangement

3. MTCH: Implementation of suitable MTCH arrangements are a prerequisite for issue of an MTC. However, depending on the acquisition arrangement, some of these functions may need to be in place earlier to support the initial MPTF

4. MPO: Required prior to any aircraft production activity, unless an alternative production approval path has been agreed by DASA

5. CAMO: Required prior to first flight of the aircraft on the Defence Register

6. AMO: Required prior to first flight of the aircraft on the Defence Register[19], unless an alternative interim maintenance arrangement has been agreed by DASA. AMOs will need MAMLs in sufficient numbers to meet AMO needs, relevant to the scope of operations and numbers of aircraft

7. MTO: Agreed in consultation with DASA.

6.1.2.70 Note that while DASA agreement to the above authorisation plans is not a regulatory requirement, it is encouraged by DASA. As Figure 9 shows, the time needed to implement a new organisation and then achieve a DASA organisational approval can be substantial, so careful management is needed to minimise Defence's schedule risk.

Superseded

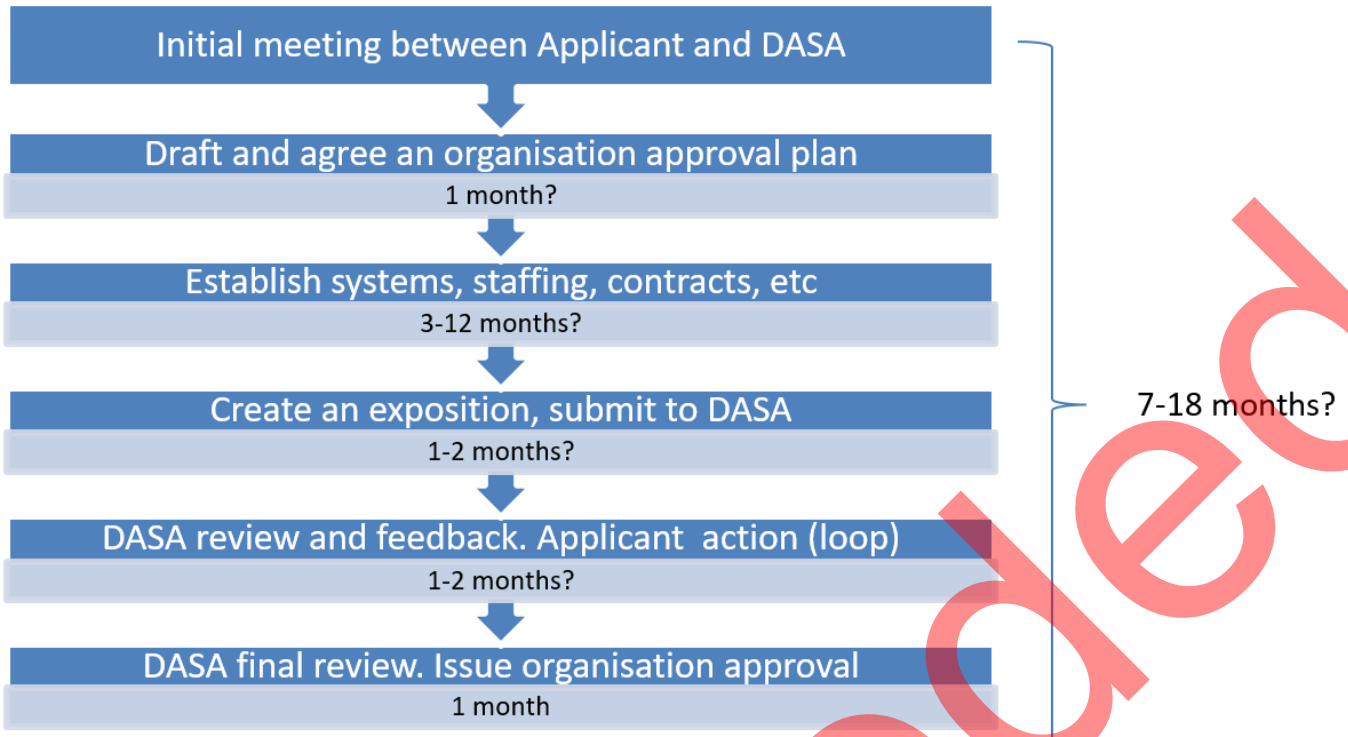


Figure 9: Timeline for DASA organisational approvals

6.1.2.71 **Establishing organisations.** DASP Manual Volume 3 Chapter 5.3, Aviation Safety Authorisations, presents a description of each DASA organisational approval, including the key artefact(s) needed to show regulatory compliance - for example, the MDO's design organisation handbook, the AMO's Maintenance Organisation Exposition (MOE), the MAO's Operations Compliance Statement (OCS), and so on. Each of these artefacts will help guide the Applicant's efforts to establish an organisation that professionally supports Defence aviation safety, as will the Acceptable Means of Compliance (AMC) and Guidance Material (GM) accompanying the relevant DASRs. DASA-sponsored education courses and DASA website material also offer useful information.

6.1.2.72 However, Applicants must bear in mind that such guidance may be incomplete, or not entirely relevant to the local context. Consequently, DASA cannot overstate the importance of the Applicant's role in refining the organisation beyond DASR (and DASA) requirements. This might include, for example:

1. learning from other Defence organisations
2. learning from comparable civil organisations[20]
3. exploring the (often extensive) guidance material released by other NAA/MAAs[21]
4. consulting with staff and others with relevant domain expertise.

6.1.2.73 A robust and evolving Aviation Safety Management System (ASMS) is pivotal to establishing an organisation that optimises its contribution to Defence aviation safety. An ASMS utilises a systematic

Superseded

approach to managing aviation safety, including organisational structures, accountabilities, policies and procedures. An effective ASMS continuously improves an organisation's safety performance through pro-actively collecting and analysing safety data to predict, prevent and treat aviation hazards and risks. DASP Manual Volume 3 Chapter 6.2, Safety Management, provides further guidance.

6.1.2.74 **DASA assessment.** The annexes in Chapter 5.3 provide insight into DASA's approach to assessing, and ultimately approving, a new or expanded organisational approval. Most approvals follow a similar process, namely:

1. the Applicant drafts an 'Exposition' or similar document, as key evidence that their organisation has implemented the systems and processes needed to comply with the relevant DASRs

2. the applicant submits the relevant DASR Form to seek an organisational approval

3. DASA conducts an assessment of the Exposition and the documents it references, often as a desktop activity for new organisations; on occasion DASA may do an on-site assessment

4. if needed, the applicant remedies any deficiencies that preclude DASA's approval of the organisation

5. DASA issues an organisational approval, perhaps initially limited in scope

6. once the aircraft is operating and the organisation has the opportunity to exercise its approval, DASA will conduct a deeper assessment, usually including an on-site visit, placing particular emphasis on the effectiveness of the ASMS and system monitoring.

6.1.2.75 Figure 10 summarises the path through to DASA approval for the seven organisations common to new aircraft acquisitions.

Superseded

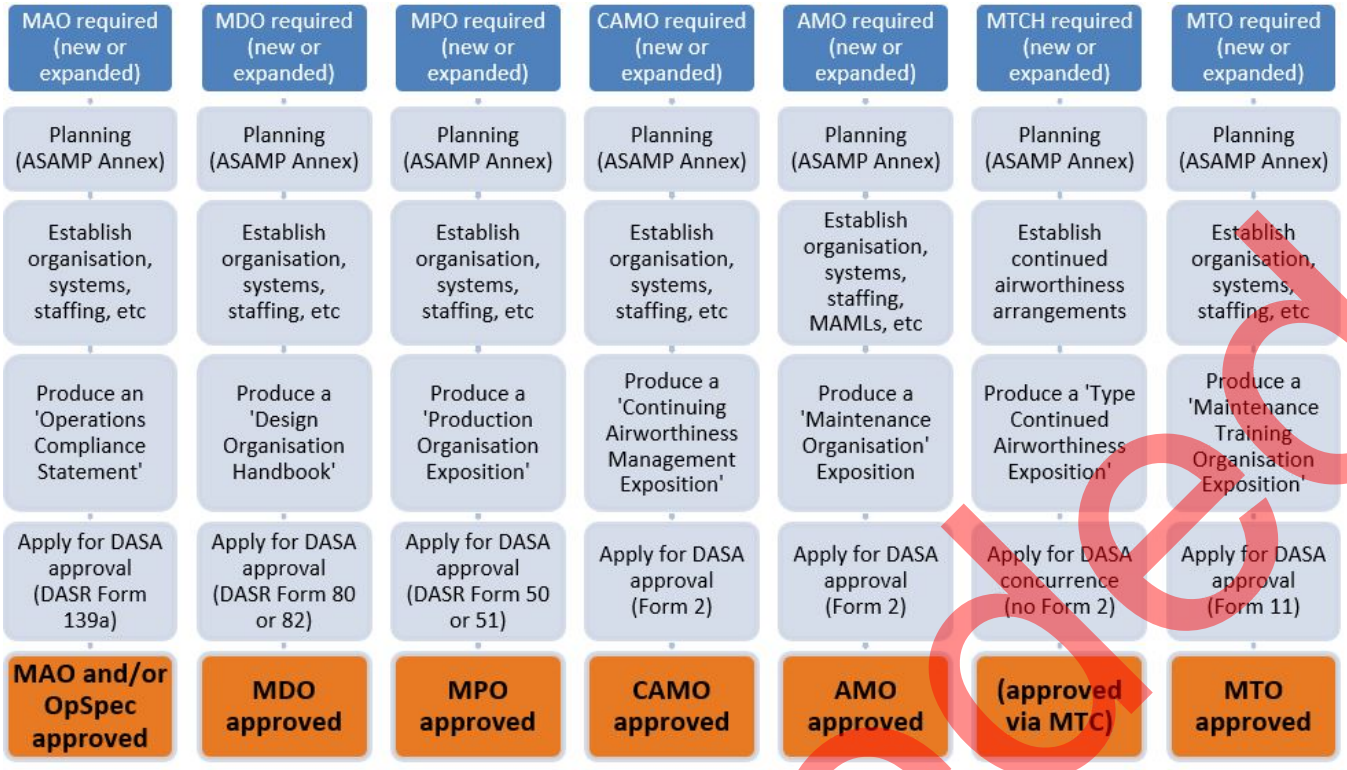


Figure 10: Path to DASA organisational approvals

Activity 3: Product authorisations

6.1.2.76 The four common product authorisations for new aircraft are the MTC, MCoA, MPTF and AMP. While an MPTF will often be issued prior to an MTC and MCoA, preparatory work on the other two will usually precede and support the issue of the MPTF. Hence, this section will consider the MPTF last.

6.1.2.77 Before exploring the four product authorisations, some brief discussion on safety risk management is warranted. Risk management is almost always a contributor to MTC and MPTF authorisations, so all stakeholders need to be conversant with Defence's 7-step risk management approach, as explained in the DASA Advisory Circular 003/2018, Risk Management in the DASP. Furthermore, DASA's experience is that this risk management is most effective when all parties robustly consult, cooperate and coordinate with each other. Critically, this must occur across organisational boundaries, and across specialisations (most notably between operators and engineers).

6.1.2.78 **MTC.** Achieving an MTC for a new aircraft is a significant milestone for an aircraft acquisition project, and one that commonly takes substantial planning and effort. While the path to an MTC is explored in DASP Manual Volume 3 Chapter 7.2, Certification, for the benefit of readers not needing that depth of information, a brief description of the process is included here.

Superseded

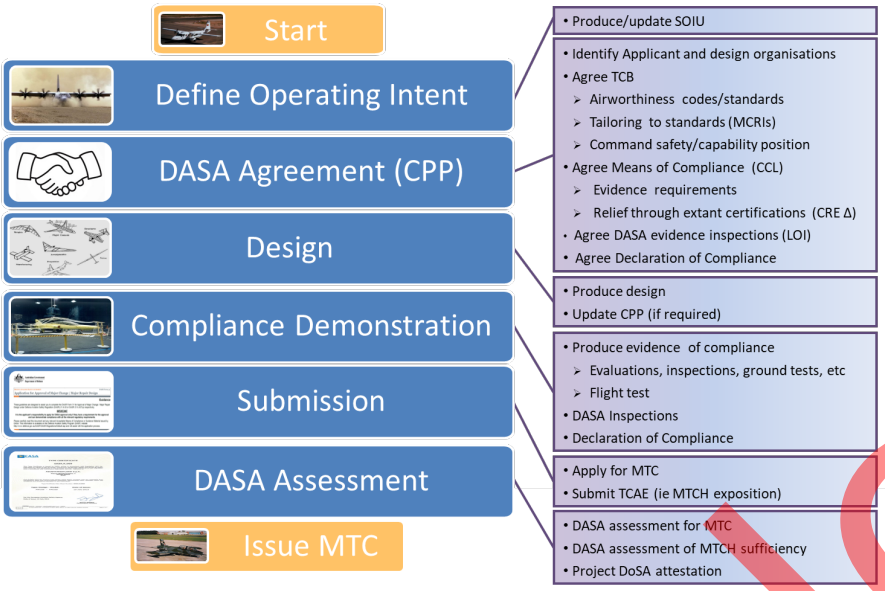


Figure 11: Path to issue of an MTC

6.1.2.79 An overview of the type certification process, culminating in an MTC, is shown in Figure 11. The first step, defining the operating intent for the aircraft, is pivotal to designers producing a design that is safe for Defence's intended Configuration, Role and Environment (CRE). A poorly-developed operating intent, or one developed late in the design lifecycle, can (and previously has) resulted in:

1. additional cost to re-design elements of the aircraft
2. operational limitations to eliminate the elevated risk, or
3. management and retention of elevated risk, often for the life of the aircraft.

6.1.2.80 The second step shows the Applicant and DASA agreeing on a Certification Program Plan (CPP). While a CPP is not explicitly required by DASR, it is inconceivable that Defence would pursue a certification program without an agreed CPP, since it imposes obligations on both the Applicant and DASA. Critically, the CPP:

1. agrees on the Type Certification Basis (TCB) for the new aircraft, which comprises the airworthiness requirements (inclusive of tailoring) that the design must meet
2. agrees on the evidence that will be produced by the design organisation(s) to demonstrate the design complies with the TCB
3. agrees on the application of 'recognition of prior acceptance', where existing product certifications by DASA-recognised NAA/MAAs will contribute to the certification of Defence's new aircraft [22]
4. defines the extent of DASA's inspections of compliance demonstration evidence.

Superseded

6.1.2.81 The tailoring of the TCB, mentioned in the first sub-paragraph above, is accomplished using one of five types of Military Certification Review Item (MCRI)[23]. Four of these MCRIs either maintain or improve the safety of the aircraft design, while the fifth, the 'Exception MCRI', can approve a reduction in the safety of the aircraft design. This reduction is only justifiable where requiring compliance with a TCB requirement would adversely affect Defence capability. While DASA ultimately approves the Exception MCRI, it is based heavily on Command's confirmation that a capability imperative exists, and that the risks due to the TCB non-compliance have been eliminated or otherwise minimised SFARP. The document used to communicate and record these Command risk decisions is normally the Airworthiness Issue Paper (AwIP). Guidance for AwIPs is provided at annex C.

6.1.2.82 The third step in the certification process is where the design organisation produces the design. For new Defence-unique designs, this often requires a DASA-approved MDO unless the design will be certified by a DASA-recognised NAA/MAA, as explained earlier in this chapter. The MDO must be in place before the design effort commences.

6.1.2.83 The fourth step, Compliance Demonstration, is where the MDO produces evidence that their design meets the DASA-agreed TCB. This step may require DASA approval of an MPTF to enable flight testing if the aircraft is already on the Defence Register. The MPTF is explored later in this section.

6.1.2.84 The fifth and six steps wrap up the certification process, and are largely self-explanatory. It is worth noting that while an Airworthiness Board (AwB) is not a prerequisite for DASA issue of an MTC, if the Defence Aviation Authority (Defence AA) elects to convene an AwB near to the MTC issue date, then DASA may wait until after that event to issue the MTC. AwBs are explored later in this chapter.

6.1.2.85 **MCoA.** As noted previously, an MCoA cannot be issued prior to the MTC. However, it is normal practice for the Defence acquisition organisation to be prepared in advance, so DASA[24] can issue MCoAs for the delivered fleet directly following the issue of the MTC. DASPMAN Volume 3 Chapter 5.3 presents the conditions and processes for MCoA issue.

6.1.2.86 **MPTF.** Once a new aircraft type has been added to the Defence Register, but prior to issue of the MTC, MAOs may need to operate the aircraft. For example, the flight test MAO may need to conduct flight tests to generate compliance demonstration evidence, and to contribute to operational test and evaluation (OT&E). The operational MAO may need to maintain crew currency, evolve OIP, conduct OT&E, and so on.

6.1.2.87 DASA can issue an MPTF if the aircraft design has been shown to substantially comply with its TCB, the configuration of the aircraft is clearly defined, the aircraft is capable of safe flight under defined conditions, and any elevated risk has been justifiably retained. An MPTF is effectively reliant on both the MTC and the MCoA processes being well-advanced.

6.1.2.88 The initial MPTF will usually constrain the MAO's operation of the aircraft. After all, the type certification program is still incomplete so there will be areas of the design that are known to be deficient or where uncertainty still remains, and hence the MPTF will impose commensurate risk controls. DASPMAN Volume 3 Chapter 7.5, Flight Conditions and MPTFs, explores MPTFs and their associated flight conditions, including risk management, the application process, periods of validity, and so on. The MAO will often self-impose additional constraints on flight operations, and will ease these constraints as the systems and personnel skills mature.

Superseded

6.1.2.89 **AMP.** CASG's Reliability and Aircraft Maintenance Program (RAMP) team, which is collocated with DASA's Melbourne office, provides Defence's centre of expertise for AMPs, and advises DASA on whether an AMP should be approved[25]. Both DASA and the RAMP team should be engaged early in the acquisition phase for guidance on AMP requirements.

Activity 4: Convene an Airworthiness Board

6.1.2.90 As discussed in Chapter 6.1.1, the Defence AA would normally require that an AwB be convened prior to operation of a new aircraft on the Defence Register[26]. The Introduction into Service AwB, normally held immediately prior to the commencement of flight operations, complement regulatory activities conducted by the DASA and build on the confidence of DASA authorisations. This AwB is underpinned by progressive check-ins by the board members with both DASA and the regulated community, focussing on:

1. understanding the status of DASA assurance of relevant products and organisations
2. safety assurance of the collective enterprise (CM, CASG, Industry) introducing the new platform;
3. potential organisational culture hazards; and
4. transition safety risks associated with the introduction of the capability through to reaching initial operational capability milestones.

6.1.2.91 The artefacts submitted by Applicants to the AwB would predominantly consist of already produced project documentation and attestations that collectively summarise the readiness to commence Flight Operations:

1. Airworthiness Plans, Artefacts, Approvals and Authorisations
2. FIC Status and Capability Realisation
3. Integrated Airworthiness System Assessment
4. MAO Risk Management and OIP

6.1.2.92 The Defence AA would normally require progressive AwBs during the initial operating period for a new aircraft, most likely aligned with key Operational Capability milestones. Hence the AwB can explore whether the operational and support systems are maturing commensurately. Periodicity might be influenced by the severity of organisational and/or product deficiencies noted during DASA assurance activities and/or a previous AwB.

6.1.2.93 Annex D presents additional guidance on the submissions, requirements and conduct of an AwB for a new aircraft type.

Superseded

Activity 5: Follow-up DASA assessments

6.1.2.94 The organisational and product authorisation requirements presented in this chapter are seldom wholly implemented when the Applicants apply for the relevant DASA authorisations. Provided DASA is satisfied the safety risks due to the deficiencies can be robustly managed, this may not preclude DASA from issuing the authorisation, as explored in the following paragraphs.

6.1.2.95 **Organisational approvals.** When DASA initially issues an organisational approval, the processes and people may not yet have been exercised for the new aircraft type. For example, an MDO may not have produced designs, the MAO may not have exercised its ASMS, organisational deficiencies may have been identified by DASA, and so on. Equally, the organisation may self-identify temporary deficiencies in their own processes and people.

6.1.2.96 These issues may not preclude DASA from issuing the organisational approval if satisfied the organisation has the ability to safely operate and support the aircraft. DASA may elect to moderate this risk through, amongst other things:

1. placing limitations on operations, initially via the initial MPTF and later via the OpSpec
2. initially constraining the 'privileges' that are available to organisations under some regulations
3. re-visiting the organisation soon after their systems and processes have been exercised.

6.1.2.97 Over time, once DASA is assured the deficiencies or lack of experience have been addressed, the constraints may be eased. The Defence AA may convene AwBs to provide additional confidence.

6.1.2.98 **Product authorisations.** As a matter of pragmatism, a MTC can be issued before compliance with the TCB has been entirely demonstrated. As a result, the MTC may include temporary limitations, or the TCB may include temporary Exception MCRIs (with supporting AwIPs documenting essential risk management), pending resolution of the outstanding design issues. Once evidence of TCB compliance is provided to DASA's satisfaction, the limitations or other risk management measures can be progressively removed.

Project completion

6.1.2.99 Even after the above five activities have been substantially completed, residual issues may still be outstanding. Provided these issues are sufficiently few in number and complexity[27], they have been professionally transitioned to the running system, and any associated risks are being managed in the relevant ASMS, DASA will in due course consider the acquisition project to be closed.

6.1.2.100 The residual issues will be monitored by DASA through normal compliance assurance activities.

Niche Applications

Superseded

6.1.2.101 So far, this chapter has focused on new aircraft types being acquired by Defence. This final section will explore three niche applications of the information presented in this chapter, namely fleet additions, acquisition of used aircraft, and Major design changes to in-service aircraft.

Fleet addition aircraft

6.1.2.102 When additional aircraft are to be added to an extant Defence fleet, the guidance presented earlier in this chapter is still mostly relevant, although it can be applied in a substantially abbreviated form. An assessment of each of the five activities from the previous section is presented below.

6.1.2.103 **Activity 1: Agreement on DASA authorisations.** The information presented in the previous section is entirely relevant. That is, the acquisition organisation should engage with DASA before contracts and other agreements are signed, and an agreed path to DASA approvals should be documented in an ASAMP. The ASAMP will be much abbreviated compared to the acquisition of a new aircraft type, and some of the ASAMP annexes will not be required.

6.1.2.104 **Activity 2: Organisational approvals.** Each of the organisational approvals will likely be in place, so this activity is limited to ensuring those organisations can manage the additional workload and (where applicable) the configuration differences of the new aircraft.

6.1.2.105 **Activity 3: Product certifications.** If the new aircraft are precisely the same configuration as the extant fleet, they can simply be listed on the MTC and individual MCoAs then issued for each new aircraft. More likely, however, there will be configuration differences. While other avenues may be acceptable, most often the new aircraft are added to the MTC mirroring the configuration of the extant fleet, and the configuration deltas for the new aircraft are processed as design changes (Major and Minor) to the common type design. If there will be a delay in completing this activity, an MPTF can be used to cover the configuration differences of the additional aircraft.

6.1.2.106 If there are substantial configuration differences to the extant fleet, perhaps even with changes to the TCB, the new aircraft might need to undergo a targeted type certification program that focuses on the configuration deltas. DASA's approval may be reflected as a separate model number on the MTC, or the deltas might be encompassed in a Military Supplemental Type Certificate (MSTC).

6.1.2.107 **Activity 4:** AwB. AwB independent review of additional aircraft would normally be considered as part of the next scheduled sustainment AwB. In exceptional circumstances, a separate AwB may be convened if the acquisition of additional aircraft requires appreciable changes to extant FIC arrangements.

6.1.2.108 **Activity 5:** Follow-up DASA assessments. The information on product deficiencies presented in the previous section is equally relevant to fleet addition aircraft. The information on organisational deficiencies, on the other hand, is unlikely to be applicable; rather, the next routine compliance assurance activity would check how the organisation is coping with the extra workload.

Used aircraft

Superseded

6.1.2.109 Where Defence elects to acquire used aircraft, the guidance presented earlier in this chapter is entirely relevant. However, there are additional actions that will need to be undertaken for Activity 3: Product Certification, namely the provision of additional documentation and the completion of additional inspections to support the issue of an MCoA.

6.1.2.110 **Documentation.** DASR 21.A.174 presents a list of the additional documentation needed for a used aircraft, namely:

1. (if the aircraft originates from a foreign military applying an EMAR based regulations): a Military Airworthiness Review Certificate;

2. (if the aircraft originates from a civil state of registry that is recognised by DASA): an export certificate of airworthiness from the recognised CAA;

3. (if the aircraft originates from elsewhere):

    i. a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer

    ii. a weight and balance report with a loading schedule

    iii. the flight manual and any other manuals required by the Authority of the State of registry

    iv. historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness

    v. a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with DASR M.

6.1.2.111 **Inspections.** Used aircraft require a more stringent inspection than new build aircraft, and must be performed by an appropriately qualified, independent and experienced organisation. The inspecting organisation is to conduct a comprehensive review of the aircraft design, maintenance and operational documentation, verified by a physical inspection of the airframe structure, engines and other systems.

6.1.2.112 The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:

1. details of the aircraft inspected, including registration number, manufacturer, serial number, model designation, and Certificate of Airworthiness number

2. last known inspected configuration of the aircraft

Superseded

3. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and lifed component status

4. details of any major structural and life-limited component changes made to items such as wings and tailplane, and a summary of the individual histories of such components, unless new when fitted

5. details of any accidents or incidents in which the aircraft has been involved

6. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated

7. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies

8. a condition assessment of flight safety critical components and fatigue-sensitive structure

9. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection

10. flight manuals and any other manuals.

6.1.2.113 Should Defence be contemplating the acquisition of used aircraft, DASA should be contacted early in the decision process. DAVENG staff in particular will provide the acquisition project with useful guidance.

Major design changes

6.1.2.114 This chapter has so far focused on aircraft acquisitions. However, the content can be extensively applied to particularly complex Major design changes to in-service aircraft. A Major design change is one that has an appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product .

6.1.2.115 Defence currently conducts around 70 Major design changes to its fleet each year. Most of these design changes have little if any significant impact on the aircraft operator or support organisations. Occasionally, however, Defence undertakes a Major design change whose effects pervade the DASP.

6.1.2.116 An example might be an extensive mid-life cockpit upgrade, which will not only challenge the design organisation, it can extensively affect MAO OIP, require simulator upgrades, change the aircrew training curriculum, allow new Performance Based Navigation approvals, require additional maintenance equipment and training, require new production organisations, require parallel operations of two different aircraft configurations for extended periods, and so on. An extensive flight test program to explore human factors and other certification issues might also be required.

Superseded

6.1.2.117 Making such pervasive changes to the aircraft and supporting systems can be a complex undertaking that requires coordination and often robust risk management across multiple organisational boundaries. While it perhaps does not have the complexities of introducing a new aircraft into service, it is far from straightforward and can introduce elevated safety risks if not executed well. In such circumstances, increased independent assurance from DASA is likely to benefit aviation safety.

6.1.2.118 Where DASA, in consultation with the MAO and CASG, identifies a Major design change that warrants this expanded DASA independent assurance, DASA will treat the project similarly to an aircraft acquisition. This may include, for example, increased scrutiny of organisational approvals, a closer assessment of how the new configuration is introduced into service (including, if necessary, imposing temporary operating constraints), greater assurance of risk management decisions, and so on. The Defence AA may require an AwB to be convened to provide an independent review of how well the new configuration has been integrated into Defence.

6.1.2.119 For these Major design changes, the guidance in the previous section is applicable almost in its entirety. Notably, an ASAMP should be raised, albeit some elements will self-evidently either be of limited scope or not applicable. An SOIU update may be required, organisational approvals may need to be expanded, and so on. The only element that is unchanged is the type certification process, since DASA certification oversight is always implemented commensurate with risk, and this is unaffected by the additional DASA scrutiny outlined in this section.

Annexes:

1. Project Initiation Meeting
2. ASAMP Guidance
3. Airworthiness Issue Papers
4. Airworthiness Board Guidance

6.1.3 Acquisition of Non-Defence-Registered Aircraft

Introduction

6.1.3.1 Civil registration of a Defence aircraft may be attractive to Capability Managers (CMs) and acquisition organisations. It may provide contractual and ongoing management simplicity, and sometimes lower costs and result in a faster introduction into service.

6.1.3.2 Regardless of the registration arrangement, Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people, and facilities on the ground. However, in the case of non-Defence-Registered (NDR) aircraft, DASA has a comparatively lesser role in guiding and assisting Command in meeting these obligations.

Purpose

Superseded

6.1.3.3 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators through the aviation safety requirements and recommended practices during the acquisition of an NDR aircraft, but only to the extent, that DASA is involved in the process.

CONTENT UNDER REVIEW

Circa 2023, DASA is currently conducting a major review of the DASA approach and regulations for non-Defence Registered (NDR) aircraft. The review will assess, amongst other things, the legal implications of a State aircraft being regulated by a civil regulator, the need (if any) for DASR regulations to supplement the civil regulations, the role of DASA (if any) in aviation safety assurance, and so on.

Once the review is completed, DASR.NDR and this DASPMAN chapter will be updated. In the meantime, Defence organisations considering the acquisition of a NDR aircraft should contact DASA for advice.

Superseded

6.2. Safety Management*

Superseded

6.3. Occurrence Reporting*

Superseded

6.4. Flexibility Provisions*

Superseded

6.5. Recognition of other Aviation Safety Authorities

6.5.1 Introduction

6.5.1.1 To promote flexibility and efficiency in the DASP, DASA recognises other aviation authorities and the independent safety assurance they apply to the platforms, organisations and people within their remit. The concept of recognition in aviation safety has its origins in the Chicago Convention and is applied by CAAs and MAAs worldwide.

6.5.1.2 Recognition is a formal acknowledgement by DASA that another aviation authority applies a credible and defensible aviation safety framework. Recognition is established through recognition certificates issued by DG DASA and available on the DASA recognition web page.

6.5.1.3 The interoperability and capability needs of the Defence aviation community are what drives DASA's recognition program and provisions. DASA applies a 'top-down' approach to recognition, involving the analysis of an authority, its aviation safety policy or regulations and corresponding oversight.

6.5.1.4 Recognition assessments do not consider specific aircraft platforms, operating organisations or service providers. A key responsibility of the Defence aviation community is therefore to ensure the suitability of specific arrangements that leverage recognition provisions.

6.5.1.5 The remainder of this section describes the core concepts underpinning aviation authority recognition in the DASP and provides an overview of practical applications.

6.5.2 Understanding Recognition

Benefits

6.5.2.1 Recognition promotes interoperability between the DASP and other aviation safety frameworks through increased flexibility and efficiency.

6.5.2.2 **Flexibility.** Recognition effectively extends DASA's safety assurance across the people, processes and products that are subject to the recognised authority's safety oversight. This expands the opportunities available to the Defence aviation community to interoperate with partner forces, or to exchange products and services across regulatory boundaries, while remaining compliant with the requirements of the DASP.

6.5.2.3 **Efficiency.** Recognition enables Defence to avoid the repetition of credible independent safety assurance that's already applied by a recognised authority. This enables Defence to focus resources on areas of greater need; eg elements that are unique to the Australian context.

Recognition tiers

6.5.2.4 DASA uses three 'tiers' to clearly identify the scope of recognition and the applicable responsibilities. DASA is responsible for establishing Tier 1 and Tier 2 recognition, while Tier 3 is a Defence aviation community ensure responsibility carried out as a means to comply with applicable DASR. Table 1 below provides a summary.

Superseded

6.5.2.5 **Tier 1 – Competent authority.** An authority recognised by DASA at Tier 1 has been assessed to be appropriately empowered and resourced to credibly carry out its mandate. Tier 1 recognition is established through the issuance of a recognition certificate. Tier 1 recognition considers the recognised authority's competence within the context of its respective nation or military service and does not enable the exchange of products and services between aviation safety frameworks. Tier 1 recognition may support safety risk management decisions by Defence aviation commanders and managers regarding matters such as:

1. the carriage of Defence personnel aboard non-Defence aircraft
2. Defence participation in exercises involving foreign military aircraft.

6.5.2.6 **Tier 2 – Interoperability provisions.** Once Tier 1 recognition is in place, DASA may recognise an authority at Tier 2 to enable specific interoperability provisions between the DASP and the recognised authority's aviation safety framework. Tier 2 recognition is established through annexes to individual recognition certificates. The interoperability provisions established through Tier 2 recognition are aligned to the following areas:

1. flight operations
2. design and certification of aircraft
3. maintenance of aircraft and components
4. production of aircraft and components.

6.5.2.7 Tier 2 recognition provisions are underpinned by a detailed assessment of the recognised authority's aviation safety policy (including regulations) and the independent assurance processes the authority applies within specific areas of interest. Where the assessment identifies any differences between the DASP and the recognised framework that may impact aviation safety, these are treated through scope limitations, conditions and caveats applicable to the Tier 2 recognition as identified in certificate annexes.

6.5.2.8 **Tier 3 – Ensuring suitability.** Tier 3 recognition is an ensure activity carried out by the Defence aviation community. At Tier 3, regulated entities leverage the recognition provisions established by DASA at Tiers 1 and 2 in order to achieve compliance with applicable DASR. The section below titled 'Leveraging recognition' provides further detail.

Table 1 Recognition tiers

	Responsibility of …	**Established through …**
Tier 1 – Competent authority	DASA (*assure*)	Recognition certificate
Tier 2 – Interoperability provisions	DASA (*assure*)	Annexes to recognition certificate
Tier 3 – Ensuring suitability	Regulated community (*ensure*)	Compliance with applicable DASR and relevant recognition certificate annex

Recognition certificates

Superseded

6.5.2.9 Where DASA's assessment of an authority supports Tier 1 recognition, a certificate is issued to formally establish the outcomes of the assessment. Each certificate states the name of the recognised authority, the scope of recognition and the applicable terms.

6.5.2.10 Tier 2 recognition provisions are identified within annexes to recognition certificates. Each annex specifies:

1. **Scope**. The scope defines the personnel, process and product integrity controls that are acceptable within the DASP, for example, specific types of organisation approvals or airworthiness authorisations.
2. **Conditions.** The conditions may place specific limitations on the scope. For example, where the recognised authority applies more than one regulation set, DASA may only accept products or services that are subject to one specific regulation set.
3. **Caveats.** The caveats define the minimum checks to be carried out, and measures to be put in place where appropriate, to ensure the suitability of recognition arrangements from an Aviation Safety perspective.
4. **Notes.** Notes provide contextual information to assist, advise and inform organisations seeking to leverage recognition.

Establishing recognition

6.5.2.11 To establish recognition of other MAAs, DASA applies a process based closely on European Defence Agency and Five Eyes standards[1]. Central to this are the candidate authority's responses, and supporting evidence, against approximately 200 questions based on ICAO Standards and Recommended Practices.

6.5.2.12 To recognise CAAs, DASA leverages results from the ICAO Universal Safety Oversight Audit Programme and assesses relevant legislation and regulations.

Limitations

6.5.2.13 **Scope limited to Aviation Safety.** Recognition is not applicable to areas that are outside DASA's remit, or outside the typical remit of an aviation authority. For example, the design, production and maintenance of explosive ordnance, to the extent that these do not concern Aviation Safety, are outside the scope of DASA's recognition framework.

6.5.2.14 **Responsibility to ensure suitability.** Recognition provides flexible means by which the Defence aviation community can achieve compliance with applicable DASR. In all cases, this places a responsibility on regulated entities to ensure the suitability of their specific arrangements that leverage recognition provisions. Put another way, recognition does not provide 'carte-blanche' permission to interoperate with other aviation frameworks in a way that's contrary to the requirements of applicable policy or legislation, eg the DASR or the WHS Act.

6.5.2.15 One of the reasons for this limitation is that DASA recognition assessments do not assess the suitability of individual aviation platforms, operating organisations or service providers. This is a Tier 3 recognition activity carried out by the Defence aviation community. Further, Recognition provisions are only applicable where the relevant people, processes or products are subject to the safety oversight of a recognised aviation authority.

Leveraging recognition

Superseded

6.5.2.16 Recognition provides a flexible and efficient means by which regulated entities can achieve compliance with applicable DASR. The applicability of recognition in a particular area may be identified within regulation text, Acceptable Means of Compliance and/or Guidance Material. Readers should then refer to the relevant CAA or MAA recognition certificate, where available, for specific Tier 2 provisions.

6.5.2.17 The Tier 2 recognition provisions within annexes to recognition certificates should regarded in the same way as DASR AMC in the sense that they provide an acceptable means to comply with the DASR. Similarly, regulated entities seeking to leverage recognition must be able to show, to DASA's satisfaction, how the relevant Tier 3 responsibilities are being fulfilled. In most cases, this will involve an application to DASA to issue an authorisation or amend an existing authorisation. As with AMC, a regulated entity may seek a variation to applicable requirements; this variation may be considered by DASA as an Alternative Means of Compliance (AltMoC). See Section 5.2 *Aviation safety policy* for further information about the concept of AltMoC.

Flight operations

6.5.2.18 Recognition underpins the responsibilities of Military Air Operators and Sponsors in relation to the operation of Non-Defence Registered Aircraft by Defence organisations[2] and Defence personnel[3]. Recognition also supports safety risk management decisions made by Sponsors of foreign military air operations in Australia[4].

Initial and Continued Airworthiness

6.5.2.19 **Type-certification and 'major' modifications.** See Section 7.2 Product Certification.

6.5.2.20 **Airworthiness Directives.** Other authorities' Airworthiness Directives (ADs) are not automatically applicable to Defence aircraft. Instead, it is up to each MTC holder to ensure that relevant ADs or equivalent are monitored as part of its system for collection, investigation and analysis of data related to failures, malfunctions and defects[5].

6.5.2.21 **Certificates of Airworthiness.** Recognition certificates may enable an applicant for a DASA Certificate of Airworthiness to use evidence originating from a recognised authority[6]. The types of evidence, the organisations suitable to provide it and the associated terms are described in the 'aircraft production' annex of recognition certificates.

6.5.2.22 **Military Permits to Fly.** Recognition certificates may enable an applicant for an MPTF to use relevant documents acceptable through recognition to support the application[7]. As the reasons for requiring an MPTF vary significantly, the recognition annexes generally do not identify which particular documents are acceptable.

Continuing Airworthiness

6.5.2.23 **Alternate Artefacts**. The DASR and recognition certificate annexes identify several airworthiness authorisations and artefacts by name, eg US Navy Flight Clearance for aircraft or EASA Form 1 for components. In the event that the named authorisation or artefact is not able to be provided to Defence, DASA may agree to the acceptance of an Alternate Artefact via a DASR Form 155. Additional detail on the acceptance of Alternate Artefacts for components may be found in Section 8.2.3.

Superseded

6.5.2.24 **Repairs and 'minor' modifications**. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation acceptable through recognition[8]. For further information, see:

1. Section 8.2.1 Continuing Airworthiness Management

    i. AMC and GM to DASR M.A.304(d) Data for modifications and repairs.

6.5.2.25 **Maintenance of aircraft and components**. A CAMO may have maintenance of aircraft and components carried out by an organisation acceptable to DASA through recognition[9]. See the following references for further information:

1. Section 8.2.1 Continuing Airworthiness Management
2. AMC to DASR M.A.201(g) Responsibilities
3. DASR M.A.801 Aircraft certificate of release to service (AUS)
4. DASR M.A.802 Component certificate of release to service (AUS).

Superseded

6.6.1 Introduction

Purpose

6.6.1.1 Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP) activities occur throughout the complete aircraft life-cycle from requirements definition, design, verification / certification and in-service sustainment. Furthermore, an effective ASIP and PSIP aims to maximise holistic outcomes for Defence Capability, including safety, cost-of-ownership and availability outcomes. Notwithstanding these broader objectives, the purpose of Section 6.6 is limited to:

1. Describing how airworthiness-related aspects of ASIPs and PSIPs interface with the DASP.
2. Describing how an effective ASIP and PSIP assists the regulated community to meet their respective DASR obligations.
3. Providing additional guidance on elements of ASIPs and PSIPs that impact airworthiness.

Audience

6.6.1.2 Section 6.6 is relevant to:

1. Military Type Certificate Holder (MTCH) organisations
2. Continuing Airworthiness Management Organisations (CAMOs)
3. DASR 145 maintenance organisations
4. organisations involved in ASIP or PSIP activities for ADF aircraft (including CASG business units and contractor organisations).

What are Integrity Programs?

6.6.1.3 'Integrity' is defined as the level of safety, performance, durability, reliability, operability and supportability of the various air vehicle systems.

6.6.1.4 There are many threats that can compromise integrity of aircraft, including:

1. inadequate design or certification
2. material or manufacturing discrepancies
3. maintenance deficiencies or maintenance-induced damage
4. environmental degradation
5. operational usage or environment differing from design assumptions
6. procedural or management shortfalls.

Superseded

6.6.1.5 Integrity programs[1] comprise a series of time-phased tasks that occur through development, acquisition and sustainment to counter and manage these threats. The goal of integrity programs is to ensure that the desired level of integrity is maintained throughout the life of an aircraft or system to maximise capability outcomes (ie safety, cost effectiveness and mission readiness).

6.6.1.6 Whilst the goal of integrity programs focuses on overall capability, maintaining integrity of the aircraft structure and propulsion system is an essential airworthiness principle[2]. Integrity program outputs include the Airworthiness Limitations (AwL) and Instructions for Continuing Airworthiness (ICA) necessary to ensure that integrity does not reduce below the required level throughout the service life of the aircraft. As shown in Figure 1, these outputs encompass:

1. prevention (eg periodic application of corrosion-inhibiting compounds)
2. inspection (eg detection of normal or abnormal degradation)
3. repair / modification / replacement (eg restoring integrity through rectification of damage that exceeds a specified level, modification or retirement of components at specified life limits).

6.6.1.7 Not depicted in Figure 1 is the ongoing monitoring and periodic assessment components of integrity programs, which provide the feedback loop to ensure that the ICA and AwL remain valid in light of actual operational experience.

Figure 1: Maintaining Integrity In-Service

Defence ASIP and PSIP Policy

6.6.1.8 Separate to DASP requirements, it is Defence Policy (Engineering and Maintenance Manual (EMM) Section 7.29-7.38) that every Defence-registered aircraft type must have an effective and efficient Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP).

6.6.1.9 Note that historically, Defence has implemented Engine Structural Integrity (ESI) programs that focus on the high energy, non-containable structural components within gas turbine engines. In contrast, the PSIP scope includes all propulsion system components, including engine, engine accessories and propeller. Some platforms still follow the ESI philosophy, in instances where there was minimal benefit to be gained from transitioning.

6.6.1.10 The principal objective of this policy is to support capability outcomes; including safety, capability delivery and assurance, and cost-effectiveness. On behalf of Capability Managers, Capability Acquisition and Sustainment Group (CASG) is responsible for ensuring effective and efficient programs are implemented and executed, and will appoint organisations as ASIP and PSIP managers to assist in discharging this responsibility. Typically, CASG will appoint the contractor or

Superseded

organisation providing aircraft / propulsion system through-life support as the ASIP and PSIP manager, but in some cases these responsibilities may be retained by CASG.

6.6.1.11 Compared to the civil sector, military operations and the Defence context typically dictate the need for more proactive and complex integrity programs. This is due to the propensity for higher operational usage variability and Configuration, Role and Environment (CRE) deviating from design assumptions, plus Defence's desire to more closely specify and control the useful service life and maintain independence of military action. MIL-STD-1530D (ASIP) and MIL-STD-3024 (PSIP) provide exemplar frameworks for meeting the Defence Policy objectives and requirements.

6.6.1.12 Note that for brevity, the collective abbreviations SIP for the ASIP and PSIP, and SIMP for the ASI and PSI Management Plans (ie the document that describes the program) are used hereon in.

Using Section 6.6

6.6.1.13 Acknowledging the broader Defence Policy mandate and objectives outlined above, the purpose of Section 6.6 is to describe how the SIP interface with the DASP and provide guidance to assist the regulated community to meet their respective DASR obligations.

6.6.1.14 Regulations and obligations related to integrity programs are distributed throughout DASR and guidance material. Effective SIPs will therefore contribute to supporting compliance against a number of DASR 21 and DASR M requirements. This Section expands upon relevant regulation, Acceptable Means of Compliance (AMC) and Guidance Material (GM).

6.6.1.15 DASA's scope of interest with respect to SIPs is how these programs contribute to airworthiness of the aircraft structure and propulsion system; in particular, how airworthiness is established (initial airworthiness) and then maintained in-service (continued and continuing airworthiness).

6.6.1.16 Section 6.6 is intended to be used by:

1. Military Type Certificate Holders (MTCHs) and Continuing Airworthiness Management Organisations (CAMOs) to understand how the SIPs for their platform should or can support their respective DASR obligations
2. DASR 145 maintenance organisations to understand how their activities support SIPs
3. CASG and industry (particularly SIP managers) to understand how SIPs interface with DASR and the associated responsibilities and requirements.

6.6.1.17 Whilst Section 6.6 describes how an effective SIP can simultaneously support MTCH and CAMO obligations, this should not be construed as suggesting that SIP execution should be fragmented within or between organisations (eg government MTCH versus CAMO, or between teams within a contracted support provider).

6.6.1.18 This Section is applicable to all aircraft operating under a Military Type Certificate (MTC), including certified category Unmanned Aircraft Systems (UAS). In accordance with DASR UAS.30(b)3, Specific Type A UAS must comply with DASR initial and continuing airworthiness regulations as directed by DASA. As outlined in the Initial and Continuing Airworthiness Requirements for Specific Category UAS Factsheet, normal practice is for the UAS operating permit applicant to propose a suitable extent of compliance for DASA approval. UAS operating permit applicants should consider tailoring and adapting the concepts outlined in this Section, based on each specific application, as part of developing their broader proposal for initial and continuing airworthiness requirements.

Superseded

6.6.1.19 The remainder of this Section is structured as follows:

1. Section 6.6.2: SIP considerations with respect to initial airworthiness
2. Section 6.6.3: SIP considerations with respect to continued airworthiness
3. Section 6.6.4: SIP considerations with respect to continuing airworthiness
4. Section 6.6.5: guidance on SIMPs under DASR
5. Section 6.6.6: consolidated list of the main SIP-related DASR responsibilities
6. Annex A and Annex B: additional guidance specific to structures and propulsion systems respectively.

6.6.2 Integrity Programs and Initial Airworthiness

Type Certification Basis

6.6.2.1 The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to be issued a Military Type Certificate (MTC). The TCB will normally include a primary certification code and any supplementation required for the Defence context and Configuration, Role and Environment (CRE) (refer DASR 21.A.17A). The Defence Aviation Safety Design Requirements Manual (DASDRM) lists the primary certification codes recognised by DASA and prescribes the supplementary design requirements that must be applied as special conditions (refer DASR 21.A.16B) to account for the Defence context and CRE.

6.6.2.2 The primary certification codes recognised by DASA provide a sound basis for the safe design of structures and propulsion systems for Defence aircraft. Subject to tailoring for the Defence CRE, these codes all are sufficient to ensure that an adequate level of integrity is established during design and certification.

6.6.2.3 However, recognised codes may require supplementation related to in service SIP monitoring and assessment, and tracking life accrual. The DASDRM Section 3 Chapters 12 and 13 provide these supplementary airworthiness design requirements and further information on type certification for structures and propulsion systems respectively. Note that these requirements are general in nature, and a deliberate assessment should be conducted based on the aircraft type, underlying airworthiness code and intended Defence CRE to determine the specific TCB wording and / or standards. Applicants are recommended to engage with DASA early in the TCB development process.

6.6.2.4 Section 7.2 also provides general information on the development of the certification basis for MTC, Military Supplemental Type Certificate (MSTC) or major change to MTC applications.

Compliance Demonstration and CRE Assessment

6.6.2.5 Along with the primary certification code and standards used, the suitability of design analysis and verification for the Defence CRE contributes significantly to the level of integrity, and therefore safety, achieved throughout the service life.

6.6.2.6 Defence rarely has direct input into the original design requirements for new aircraft, and often receives changes to a MTC and repair designs that are not exclusively designed for Defence. Unless a design has explicitly accounted for the Defence CRE, then a CRE Assessment (CREA) is

Superseded

required to ensure the design is safe for the intended Defence use. This is an essential step in leveraging prior Civil / Military Aviation Authority (CAA / MAA) certification for the purpose of obtaining a MTC or MSTC / major change approval (refer to DASR 21.A.20 and Section 7.2 for further information).

6.6.2.7 CREAs involve assessing whether the intended Defence CRE is compatible with the as designed CRE. For aircraft structures and propulsion systems, the CREA should examine the configuration and role related usage, loads and environment such as operating weights, altitudes, speeds; and repeated manoeuvre, dynamic, gust and thermal environments. Basic comparisons of aircraft role(s), mission mix or flight profiles (as articulated in the in the Statement of Operating Intent and Usage (SOIU)) will usually not provide adequate fidelity to identify meaningful CRE differences for structures and propulsion systems, and will therefore be insufficient in isolation. Fatigue degradation in particular can be highly sensitive to small changes in usage, loads and environment.

6.6.2.8 CREAs for structures and propulsion systems therefore usually require detailed and quantitative analysis. The SOIU should be considered a starting point for understanding the intended CRE, and an attempt should be made to better-quantify anticipated usage, loads and environment to the extent necessary, with greater fidelity than the basic information in the SOIU (eg using data from similar aircraft types). The aim should be to undertake a quantitative comparison between the as-designed and intended CRE that, for example, allows conclusions to be made regarding relative severity and impact on AwLs.

6.6.2.9 The CREA is the responsibility of the applicant for a MTC or MSTC / major change when leveraging prior certification. However, applicants should ensure that the analysis, which supports the structures or propulsion system CREA, is developed by a suitably-experienced organisation with access to the requisite data. This will likely require support from the aircraft / engine Original Equipment Manufacturer (OEM), a design organisation with sufficient technical capability and access to relevant data, and / or the expertise available within the SIP.

6.6.2.10 **Inconclusive CREAs.** CREAs for structures and propulsion systems sometimes cannot conclude with sufficient confidence whether the intended Defence CRE is compatible with the as-designed CRE. This often occurs during initial acquisition due to an inability to describe the intended Defence CRE with adequate fidelity. In this situation, follow-on activities should be conducted in service to obtain and assess further data, and should be managed through the SIP. Further assessment may only be possible once the ADF operational concept is fully defined and / or once a sufficient quantity of in-service data is available. In this situation a decision will need to be made as to whether:

1. there is a suitable basis to establish compliance for the TCB requirements affected by the inconclusive CREA outcome, or if they need to remain non compliant until follow-on activities are conducted
2. mitigating actions (eg additional lifing factors) are required to eliminate or otherwise minimise any associated risks so far as is reasonably practicable
3. there is any residual elevated risk that needs to be retained by the appropriate risk management authority.

6.6.2.11 These decisions will require experienced professional judgement and will generally be based on the level of uncertainty with the CREA and a qualitative risk assessment. Applicants are recommended to engage with DASA early when there is a lack of data or uncertainty with CREAs.

Military Type Certificate

Superseded

6.6.2.12 As per DASR 21.A.41 the MTC includes:

1. the type design (DASR 21.A.31), encompassing:
    i. the drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the TCB
    ii. information on materials, processes and methods of manufacture and assembly necessary to ensure the conformity of the product
    iii. an approved airworthiness limitations section of the ICA (as defined by the applicable airworthiness codes)
2. operating limitations
3. the Type Certificate Data Sheet (TCDS)
4. the TCB.

6.6.2.13 Under the DASR definition, the MTC does not include:

1. ICA (aside from those requirements identified as AwLs)[3]
2. off-board systems and processes, with the exception of any data which is defined as part of the AwLs (refer Section 6.6.2.24.d.(ii)), such as the SIP systems for ongoing monitoring and periodic assessment
3. organisational expositions and SIMPs.

6.6.2.14 As described at Section 6.6.2.3, the TCB requirements should encompass the DASDRM design requirements related to key SIP[4] elements. Whilst compliance must be established for these TCB requirements in order to obtain a MTC, these SIP elements do not subsequently form part of the type design and MTC[5] (with the exception of any data defined as AwLs, as discussed at Section 6.6.4.5). Nevertheless, the SIP manager, on behalf of the MTCH, should ensure that all relevant SIP elements continue to comply with the relevant TCB requirements, and that alterations to the SIP systems / processes are managed with appropriate rigour, including documentation in the DASA endorsed SIMP.

Critical Parts

6.6.2.15 **Identification of Critical Parts.** It is vital that Defence understands which parts of the aircraft structure and propulsion system are essential for safe flight and therefore could have a significant impact on safety if they were to fail or not perform their intended function. This is important for effective execution of the SIP and assisting regulated entities in discharging their respective obligations. Note that structural or propulsion system critical parts are not limited to those identified as being susceptible to fatigue failure, but include all parts irrespective of their potential failure mode(s) or 'critical characteristic'. It is the consequence following failure or inability to perform the intended function that is the key factor.

6.6.2.16 The primary consideration for defining what constitutes a structural or propulsion system critical part should be the certification basis for the aircraft and propulsion system. However, noting that not all airworthiness codes are equivalent, and some are not explicit on definition of critical parts, general definitions for structural and propulsion system critical parts are provided in DASR AMC

Superseded

21.A.41. Also refer to Annex A and Annex B to this Section for further information on structural critical parts and propulsion system critical parts respectively.

6.6.2.17 Structural and propulsion system critical parts should normally be defined by the responsible OEM / design organisation and it is important to understand the criteria used for this process. The applicant should ensure the definition used by the OEM / design organisation is consistent with the TCB and / or the general definitions provided in DASR AMC 21.A.41. Otherwise, a dedicated activity may be required to identify critical parts using an acceptable definition; in this instance, applicants are encouraged to engage with DASA early.

6.6.2.18 Note that some definitions for 'propulsion system' include drive system. However, as per the definitions used by DASA, drive system structural critical parts should be managed under the ASIP. More generally, the OEM responsible for a given part is the best indicator of which SIP is most appropriate (ie engine or propeller OEM = PSIP and airframe OEM = ASIP). Note also that there is nothing preventing structural and propulsion critical parts being managed under an integrated program.

6.6.2.19 The applicant for a MTC or MSTC / major change should identify a list of critical parts, consistent with the TCB and the intended Defence CRE, and submit this to DASA as part of the application (refer DASR AMC 21.A.41 and AMC1 21.A.97). The definition and listing of critical parts should be included, either directly or by reference, in the SIMP. If the list of structural or propulsion system critical parts is provided as part of a broader 'safety-critical' item list for the aircraft type, then the parent aircraft system for each item should be identified.

6.6.2.20 **Maintaining Critical Parts List.** The MTCH should maintain and update the list of critical parts for the MTC based on design changes (including introduction of alternate part numbers), repairs, new / revised analysis or in service experience. Design changes and new repair designs should identify any new critical parts using the same criteria as initially used to obtain the MTC. The MTCH should also identify new critical parts as required through undertaking their continued airworthiness obligations under DASR 21.A.3A and DASR 21.A.44(c) (eg occurrences or new / revised analysis may indicate that original assumptions regarding a part's function or potential failure mode(s) are incorrect).

6.6.2.21 **Use of Critical Parts List.** The regulated community can use the definition and published[6] list of critical parts to assist in discharging some of their respective obligations. This includes, but is not limited to, assisting with:

1. understanding how the broader SIP contributes to maintaining airworthiness under DASR
2. identification of AwLs by applicants for a MTC or MSTC / major change
3. ongoing management of AwLs by MTCHs (eg identifying if a new maintenance requirement should be treated as an AwL)
4. design and classification of modifications and repairs by design organisations
5. identification of critical maintenance task candidates for the purpose of determining error capture methods (DASR AMC M.A.302(d)(3))
6. decisions regarding deferred defects or 'endanger flight safety' assessments by CAMOs or DASR 145 maintenance organisations (DASR M.A.801(h) and DASR 145.A.50(a))

Superseded

7. identification of reportable occurrences by all regulated entities.

Airworthiness Limitations

6.6.2.22 **AwL Definition.** AwLs are established through the certification process as being essential for preventing and / or detecting failures that may lead to an unsafe condition. AwLs may apply to many systems including the aircraft structure, propulsion system, fuel system and wiring. For aircraft structures and propulsion systems, AwLs will be associated with critical parts. A common misconception is that structural and propulsion system AwLs are only fatigue-related. AwLs are established to prevent any potential unsafe condition developing, which for structures and propulsion systems can relate to any threat including, but not limited to: fatigue, environmental degradation (eg corrosion, hot-corrosion, deterioration of organic compounds, etc), disbonding, mechanical wear, creep, flutter or other aeroelastic instability, vibration / aeroacoustics and accidental / discrete-source damage.

6.6.2.23 Note that the term Certification Maintenance Requirement (CMR) has a specific meaning under civil airworthiness codes for transport-category aircraft (refer Section 7.2.5.3). Applicants should therefore consider whether it is appropriate to use this term for aircraft structure and propulsion system mandatory maintenance actions, especially for civil-derivative aircraft types.

6.6.2.24 For aircraft structures and propulsion systems, AwLs are considered to encompass (refer DASR AMC 21.A.41):

1. mandatory modification, retirement or replacement intervals
2. mandatory inspection requirements: including inspection interval(s) and the inspection method
3. mandatory post-flight inspections and maintenance actions associated with any use of either the rated 30 second or 2 minute one-engine-inoperative power (for rotorcraft engines with such power ratings)
4. the definition of the interval under a. and b. above includes:
   i. the interval metric[7]
   ii. any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

6.6.2.25 The inspection method under Section 6.6.2.24.b is considered to include the inspection technique[8], reference standards and any other inspection procedure parameters, which impact the detectable flaw size or probability of detection.

6.6.2.26 Tracking life accrual[9] against AwL intervals for structural or propulsion system critical parts often involves algorithms, damage equations, conversion factors or other similar data. Under the definition above, any data that is inextricably linked with calculation of life accrual is considered mandatory and therefore should be treated and managed as part of the AwL. Some examples include:

1. algorithms and look-up data which convert parametric or strain time-history data into per-flight damage increments
2. flight hour conversion factors for lifing parameters which are difficult to monitor flight-by-flight

Superseded

3. engine rotational speed ‘gates’ used to define full or partial cycles

4. time-in-temperature matrices to track creep or thermal fatigue life accrual for engine hot-section parts

5. fill-in data or factors used to account for missing data.

6.6.2.27 AwLs for aircraft structure can include mandatory actions for specific structural locations or parts (eg modification, replacement or inspection) and an overall safety-based life limit for the aircraft. The overall safety-based life limit is often referred to as the Limit of Validity for civil certified aircraft.

6.6.2.28 **Identification of AwL.** Structural and propulsion system AwLs should normally be defined by the responsible OEM / design organisation. The applicant for a MTC or MSTC / major change should ensure that (refer DASR AMC 21.A.41, DASR AMC1 21.A.97):

1. structural and propulsion system AwLs have been identified and are segregated and clearly distinguishable from other ICA

2. structural and propulsion system AwLs are consistent with the TCB and the intended Defence CRE

3. the relevant data is collated and submitted to DASA as part of the application.

6.6.2.29 Once approved by DASA, the definition and list of AwLs should be included, either directly or by reference, in the TCDS and SIMP.

6.6.2.30 Structural and propulsion system AwLs can often be highly sensitive to small changes in usage, loads and environment, and therefore a detailed and quantitative CREA is typically required (refer Section 6.6.2.8). Note that this includes all aspects of the AwL, including the algorithms, equations, factors or other data to calculate life accrual, as these too can be impacted by differences in CRE. For example, damage look-up data, factors in damage equations or fill-in data may be based on mission profile severity, which will vary between different operators.

6.6.2.31 Depending on the underlying airworthiness code, AwL terminology may differ, and mandatory requirements may not be explicitly segregated within the ICA provided by the OEM. In these cases, the applicant should define a list of structural and propulsion system AwLs consistent with the definition of Section 6.6.2.24. A well-defined list of critical parts will assist with this activity. Ensuring that AwLs are clearly identified as such, and segregated from the remainder of the ICA, assists the regulated community to fully discharge their respective obligations and ensures mandatory requirements are not altered or deferred without appropriate rigour and assurance.

6.6.2.32 **Ongoing Validity of AwLs.** Ensuring AwLs remain compliant with the TCB and appropriate for the Defence CRE is a MTCH continued airworthiness obligation. AwLs should be updated or introduced as required based on design changes, repairs, new / revised analysis or in service experience.

6.6.2.33 **New or updated structural and propulsion system AwLs.** Any change to a MTC or repair design that introduces or alters an AwL (increase or decrease) should be classified as a major change / repair (per DASR GM 21.A.91 and DASR GM 21.A.435). Any alteration of the parameters or data that are encompassed by the definition at Section 6.6.2.24 is also considered a change to the AwL.

6.6.2.34 It is important to ensure that any change or repair that impacts AwLs has explicitly accounted for the Defence CRE (as outlined in Sections 6.6.2.5-6.6.2.9).

Superseded

6.6.2.35 Changes / repairs that introduce or alter inspection-based AwLs for structures and propulsion systems require special attention as there is an inextricable link between the inspection interval(s) and method (refer Section 6.6.2.25). Design organisations should ensure that suitably-qualified and competent personnel oversee these changes / repairs and that suitable standards are used which govern the parameters that define the inspection method.

6.6.2.36 Allowing aircraft to exceed an AwL should not be approved as a change or repair unless compliance with the TCB can be demonstrated. Exceeding an AwL invariably involves an elevated level of risk (beyond that inherent in the TCB) and should only be considered where there is a compelling imperative to continue operations. Where compliance with the TCB cannot be shown, a change or repair approval is not an appropriate instrument. In this case, a Military Permit to Fly should be considered.

6.6.3 Integrity Programs and Continued Airworthiness

Investigation of Occurrences

6.6.3.1 **Overview.** Collection, investigation and analysis of failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on airworthiness (collectively referred to as 'occurrences' hereafter) by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed (DASR 21.A.3A(a)).

6.6.3.2 Any occurrence that is deemed to have resulted in, or may result in, an unsafe condition must also be reported to DASA and other organisations required by the implementing regulations. Another organisation may have already deemed an occurrence as reportable to DASA, or the occurrence may be deemed reportable by the relevant DASR 21 approval holder in accordance with DASR 21.A.3A(b).

6.6.3.3 Refer to DASR AMC 21.A.3B(b) for further detail on the definition of an unsafe condition and DASR GM 21.A.3B(b) for guidance on determining when an unsafe condition exists. DASR AMC GR.40 also provides examples of reportable occurrences. DASR AMC GR.40 Section II (Technical) and Section III (Aircraft Maintenance and Repair) are most applicable to structures and propulsion systems. Note that the DASR AMC GR.40 examples should not be used by design organisations like a 'checklist' for determining when a report has to be made to DASA. After receipt of reports from the primary sources of information, the design organisation will normally perform some kind of analysis to determine whether an occurrence has resulted or may result in an unsafe condition (refer guidance at DASR GM 21.A.3B(b)) and if a report to DASA should be made.

6.6.3.4 When a reportable occurrence results from a manufacturing or design deficiency, then the DASR 21 approval holder must also report to DASA the results of its investigation and any action it is taking, or proposes to take, to correct the deficiency (DASR 21.A.3A(c)(1)). Furthermore, when an Airworthiness Directive is required to correct an unsafe condition the DASR 21 approval holder must submit the proposed corrective action and / or required inspections (including the necessary details) to DASA for approval (DASR 21.A.3B(c)(1)). Further discussion on occurrence reporting and determination of unsafe conditions is beyond the scope of this Section.

6.6.3.5 **Structures and Propulsion Systems Guidance.** Investigation and analysis of occurrences for aircraft structure and propulsion systems often requires specific skills due to the complex nature of these systems and their associated failure modes, and the specialised design methods and tools typically employed. The MTCH should ensure that all structural and propulsion system occurrences

Superseded

are investigated and analysed using the expertise available within the SIP and / or the responsible design organisation (if separate).

6.6.3.6 There have been many cases throughout aviation history where catastrophic structural or propulsion system failures were preceded by little or no warning in terms of prior defects or failures. Therefore, whilst trending is important (refer Section 6.6.3.8), each individual structural and propulsion system occurrence should be promptly collected, investigated and analysed.

6.6.3.7 Investigation and analysis should compare the actual occurrence with the assumptions made during design and type certification, and determine if the MTC (including AwL and operating limitations) or ICA need to be amended.

6.6.3.8 The MTCH should also ensure that all relevant occurrences and data are captured by the SIP for ongoing monitoring and periodic assessment (refer Sections 6.6.3.11-6.6.3.26). This ensures that the SIP identifies any risks and hazards associated with the type design that are only evident through longer-term aggregation and trending of occurrences.

6.6.3.9 **Retention of Components.** Thorough and detailed examination (ie forensic techniques) is often crucial to understand the root-cause for failures in structural or propulsion system parts and prevent further failures occurring. Processes should therefore be established that allows retired, damaged or defective components to be examined as and when required.

6.6.3.10 The MTCH, and / or the responsible design organisation, should determine when an unserviceable or unsalvageable component (refer DASR 145.A.42) needs to be subject to further examination as part of an investigation. Furthermore, the MTCH or relevant design/repair approval holder should advise the CAMO and in turn, DASR 145 organisation as to when the decision has been made that such components are no longer required for investigation. Note that where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should retain the component until the investigation has determined that the component is not required to be retained for further examination (refer DASR 145.A.42).

Ongoing Monitoring and Periodic Assessments

6.6.3.11 **Overview.** OEMs make many assumptions during design regarding factors such as operational usage, loads and environment; material performance; and manufacturing and assembly processes in order to demonstrate compliance with the TCB and develop operating limitations and AwLs.

6.6.3.12 In-service experience and additional testing or analysis may show that certain assumptions are no longer valid. Furthermore, the OEM's assumptions cannot always specifically account for the usage and environment of every operator. This is especially the case for military aircraft as role(s), tactics and environment can vary significantly between operators and evolve over time. Operations for many ADF aircraft have historically been shown to be different and, in some cases, significantly more severe than the OEM design assumptions.

6.6.3.13 It is essential to identify, and act upon as required, any instances where the design assumptions are no longer valid throughout the service life. The MTCH is responsible for ensuring the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment (DASR 21.A.44(c)). The purpose of these two facets include:

1. ongoing monitoring of service experience in order to collect the data required for, and to determine the periodicity of, assessments

Superseded

2. periodic assessment to ensure that the assumptions made during design and certification that could affect the integrity of structural and propulsion system critical parts remain valid for the Defence CRE.

6.6.3.14 Assumptions may be identified as no longer valid for the entire global fleet, a subset of the global fleet, or just the Defence CRE. The scope of the MTCH obligation under DASR 21.A.44(c) is ensuring that the Defence type design and MTC remains compliant with the TCB. A particular focus is ensuring the operating limitations and AwLs established during certification remain valid for the Defence CRE.

6.6.3.15 The MTCH is accountable for defining the system and processes for ongoing monitoring and periodic assessment in accordance with DASR 21.A.44(c) and the TCB requirements derived from the DASDRM. For new acquisitions, the CASG Project Office will typically be responsible for ensuring the necessary systems and processes are in place and fit-for-purpose prior to obtaining a MTC.

6.6.3.16 In practice, execution of the DASR 21.A.44(c) obligation should be fulfilled through the broader SIP for each aircraft type. The SIP manager should ensure that the SIP systems and processes for monitoring and assessment continue to meet the requirements of DASR 21.A.44(c) and the TCB.

6.6.3.17 **Ongoing Monitoring.** Ongoing monitoring involves collecting relevant service experience data, and evaluating the data to identify significant events, exceedances of baseline assumptions, trends or anomalies that require more detailed assessment. These activities should occur continuously throughout the service life and result in the following outputs:

1. trigger and / or determine the frequency at which more detailed periodic assessments should be performed
2. identify any events, exceedances of baselines, trends or anomalies that require further investigation as part of the periodic assessments
3. collate and store all relevant service experience data required for periodic assessments, and future trending and analysis purposes.

6.6.3.18 Relevant service experience data collected and evaluated through ongoing monitoring should include, but is not limited to:

1. operational usage
2. failures, malfunctions, defects and other occurrences, and other unserviceabilities
3. maintenance findings, results of inspections and repair information
4. condition and health monitoring data
5. detailed inspection or testing of aircraft / parts with service history.

6.6.3.19 The usage data required for ongoing monitoring and periodic assessment is often extensive and complex. Integrity of structural and propulsion system critical parts for a given aircraft type can be impacted by a variety of usage and environmental factors, so collection of a large number of usage parameters is often required to compare to all the relevant design assumptions. Furthermore, the quantity of data required may vary from a statistically-representative sample through to data for all operations.

Superseded

6.6.3.20 The MTCH should define the data required for the purposes of DASR 21.A.44(c) and establish the necessary arrangements with the operating and maintenance organisations to collect this data through the SIP. The SIMP should outline the specific responsibilities for each aircraft type.

6.6.3.21 Where available, and relevant to the ADF CRE, service experience from other operators should also be considered.

6.6.3.22 **Periodic Assessment.** Periodic assessments involves detailed analysis to test whether the assumptions made during design and certification that could affect the integrity of structural and propulsion system critical parts remain valid based on the intended and actual Defence CRE.

6.6.3.23 Periodic assessments should identify whether there is a need to update the MTC (including AwLs and operating limitations), ICA or monitoring provisions (eg tracking life accrual or health monitoring) in order to ensure continued compliance with the TCB. These subsequent updates are separate to the periodic assessment process and should be conducted in accordance with the relevant DASR.

6.6.3.24 Periodic assessments should also identify when there is a need to update the systems or processes for ongoing monitoring to ensure the necessary data is being collected.

6.6.3.25 Access to a minimum level of type design data and suitable expertise is necessary to undertake the analysis required. This should be considered by the MTCH when identifying organisations to undertake periodic assessment.

6.6.3.26 Refer to Annex A and Annex B for more detailed guidance regarding ongoing monitoring and periodic assessment for structures and propulsion systems.

6.6.4 Integrity Programs and Continuing Airworthiness

Tracking Status of Service Life-Limited Components

6.6.4.1 **Tracking against Structural and Propulsion System AwLs.** The operating organisation is accountable for recording the status of service life-limited components; ie tracking life accrual against AwLs (DASR M.A.305(d)(4)). 'Service life-limited' parts under DASR refers to parts that as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved life consumption unit. These mandatory actions are referred to as AwLs throughout this Section.

6.6.4.2 Variation in actual aircraft usage and configuration can have a significant impact on when AwL actions (such as component replacements or inspections) need to be performed. The system for tracking life accrual should ensure that individual aircraft or components (as relevant) do not exceed AwL intervals. For aircraft structures and propulsion systems, this often requires capturing and analysing a variety of usage parameters in addition to measuring accrual of AwL interval metrics such as flight hours, flight / engine cycles or landings to ensure the underlying basis of the AwL interval is not exceeded. Many AwL intervals are promulgated in 'simple' metrics such as flight hours or flight / engine cycles, however, actual damage / life accrual for the failure mechanism in question is usually more complex and varies based upon a range of operational factors. Therefore, additional usage parameters must often be captured and analysed to ensure individual aircraft or components are not exceeding the underlying basis of the AwL. For structural and propulsion system AwLs, the SIP for each aircraft type should support this obligation through calculation of the relevant lifing metrics and / or data analysis.

Superseded

6.6.4.3 **System Requirements.** The philosophy and complexity of the system[10] required for tracking life accrual may vary significantly based on the certification basis, the aircraft / propulsion system type and role, and the nature of each individual AwL. Furthermore, tracking the status of structural and propulsion system life-limited critical parts for military aircraft is typically more complex than that required for civil aircraft. Additional guidance and examples for structures and propulsion systems are provided in Annex A and Annex B respectively.

6.6.4.4 The DASDRM structures and propulsion system chapters each include an essential airworthiness design requirement on tracking life accrual against critical part AwLs. The MTCH should provide the technical requirements for the system, including the usage parameters that need to be captured, with these requirements ideally being based on OEM data or advice.

6.6.4.5 As outlined in Section 6.6.2.24.d.(ii), any algorithm, equation, factor or other engineering data which must be used to calculate life accrual is considered part of the AwL and therefore MTC. However, the broader system for tracking life accrual that is built around this data is generally not considered part of the MTC.

6.6.4.6 Tracking life accrual usually requires a complete usage history for each individual aircraft / component. Therefore, relevant data from all ground and flight operations should be captured (including pre-delivery usage if feasible) and the system should conservatively account for missing data. As identified at Section 6.6.2.26, fill-in data / factors used to account for missing data is typically considered part of the AwL. Significant quantities of missing data can impact the accuracy of life accrual, and therefore targets for valid data capture should be established and monitored[11].

6.6.4.7 Depending upon the type of AwL, tracking life accrual could include both tracking total life and tracking life since last maintenance action (eg for repeat inspection intervals).

6.6.4.8 When critical parts can be transferred between aircraft or engines then the system should have the ability to track life accrual at the component level.

6.6.4.9 Life accrual for structural and propulsion system critical parts can be sensitive to small variations in usage or configuration. Therefore, the system for tracking life accrual should be subject to initial validation. Validation should test the entire system (on-board and off-board elements) in an end-to-end fashion; ie from raw / input data through to the AwL lifing metric outputs. Validation should ensure that the system produces reliable, repeatable and suitably conservative outputs so that AwL intervals are not exceeded in-service.

6.6.4.10 Even validated systems can result in incorrect outputs if subject to bad input data. Therefore, the system should include means to identify and account for missing or erroneous input data, and include quality checks of processed data.

6.6.4.11 The period between a ground / flight operation and updated life accrual data being available will vary between platforms. In some cases near real-time update of life accrual data will be available following operations, whilst other cases will involve more lag (eg when processes require engineer-in-the-loop or complex data processing to produce life accrual outputs). Therefore, the system for tracking life accrual should take into account reporting lag to ensure that AwLs are not exceeded.

6.6.4.12 **Relationship between Continuing and Continued Airworthiness Obligations.** The operating organisation is accountable for ensuring that individual aircraft / components do not exceed the underlying basis of AwL intervals. This is a continuing airworthiness obligation as it relates to the aircraft complying with the airworthiness requirements in force and being in a condition for

Superseded

safe operation. Whilst the operating organisation is accountable, the SIP for each aircraft type should support this obligation through calculation of the relevant lifing metrics and / or data analysis when this level of complexity is required.

6.6.4.13 There is also an obvious relationship with the MTCH *continued* airworthiness obligation to ensure that AwLs remain valid for the Defence CRE. The interaction between the *continuing* versus *continued* airworthiness processes to ensure individual aircraft / components do not exceed the underlying basis of AwL intervals will vary between platforms and SIP philosophies. For some platforms, if SIP analysis indicates that individual aircraft may exceed the underlying basis of an AwL, then the MTCH may revise the AwL (for all aircraft) so that it fully encompasses all outliers in terms of life accrual rates. For other platforms, the CAMO may routinely adjust scheduled maintenance (ie maintenance events which correspond to when AwL actions are undertaken) based on individual aircraft life accrual rates and SIP outputs, to ensure no aircraft / components exceed the underlying basis of the AwL interval.

6.6.4.14 For structures and propulsion systems, there will often be significant overlap in terms of the usage parameters and data analysis required to fulfil both continuing and continued airworthiness functions. Therefore, a single SIP system[12] can simultaneously be supporting both continuing and continued airworthiness responsibilities. Where this is the case, those executing the SIP must remain cognisant of the separate DASR responsibilities the single system is supporting.

6.6.4.15 **Used Critical Parts.** Acquisition of critical parts with prior (non-ADF) usage poses particular challenges for tracking life accrual against AwLs. Used critical parts can enter the ADF system in a number of ways, including acquisition of used aircraft or engines, purchase of used spares, or participation in a global parts-pooling arrangement. Even though the headline life-consumption metric will be provided for used components, the ability to understand the actual life accrual against the underlying basis of the AwL interval generally requires more detailed usage data.

6.6.4.16 Along with any relevant previous configuration and maintenance records, the CAMO should endeavour to obtain detailed usage parameters that enables the severity of non-ADF usage to be sufficiently understood. The CASG Project Office should undertake this on behalf of the CAMO for acquisition of used aircraft/engines. The CAMO may not necessarily need to hold this data if the organisation managing the system has access to the non-ADF usage data (eg global sustainment provider). If such data cannot be obtained, then the CAMO should seek advice from the MTCH and expertise available within the SIP to ensure appropriately-conservative assumptions regarding life accrual for non-ADF usage are implemented.

Aircraft Maintenance Programme

6.6.4.17 This section describes how an effective SIP can support the development and ongoing validity of relevant Aircraft Maintenance Programme (AMP) elements. Due to the broader Defence SIP Policy mandate, SIPs will often overlap with CAMO Reliability Programme (RP) obligations for the aircraft structure and propulsion system (ie SIP data and assessments can be leveraged to ensure relevant AMP elements remain effective). Therefore, CAMOs should be aware of the existing SIP scope and functions for each aircraft type, and may leverage the SIP to reduce the need for separate RP processes where appropriate. The AMP should identify where and how SIP supports the CAMO RP requirement (DASR M.A.302(f)) for the aircraft structure and propulsion system[13].

6.6.4.18 **AMP Compliance with Mandatory Requirements.** The AMP must establish compliance with mandatory requirements (ie AwLs) and identify these as such to prevent inadvertent variation[14]. The SIP, through the SIMP and TCDS, will provide the definition of structural / propulsion system AwLs, listing of AwLs as required, and reference to authoritative source for AwLs. This should assist

Superseded

the CAMO in identifying mandatory requirements (including changes thereto) and their authoritative source in the AMP.

6.6.4.19 Note that AwLs are developed as part of the certification process and should not be extended or altered by the CAMO. Whilst there may be instances where the RP identifies the need to update AwLs, this is more often initiated through MTCH continued airworthiness obligations (refer Section 6.6.3), and in all cases should be developed and approved as a major change to the MTC.

6.6.4.20 **Basis of AMP Tasks and Intervals.** The AMP should be established based on anticipated ADF utilisation of the aircraft[15]. When developing an AMP, the SIP can provide data and assessments that will assist the CAMO in ensuring that structural and propulsion system AMP tasks and intervals reflect anticipated ADF utilisation.

6.6.4.21 Furthermore, whilst the AMP tasks and intervals will normally be based upon the OEM's recommended maintenance programme[16], the CAMO may need or desire to introduce additional or alternative instructions. For aircraft structures and propulsion systems, the SIP expertise, data and assessments can provide the supporting information for alternative and / or additional tasks and intervals proposed by the CAMO (DASR AMC M.A.302(d)).

6.6.4.22 **Periodic Review and Amendment of the AMP.** The AMP must be subject to periodic review to ensure it remains valid in light of operating experience[17], instructions issued by DASA and any new and / or modified maintenance instructions promulgated by the MTCH or other design approval holder (DASR M.A.302(g)). For aircraft structures and propulsion systems, the SIP expertise, data and assessments can support the periodic review and amendment of relevant AMP elements.

6.6.4.23 Some RP approaches used for other aircraft systems may not be appropriate for structures and propulsion systems. For example, systems approaches for establishing alert levels / performance standards, use of mean-time-between-failure style metrics, and statistical analysis techniques will usually not lead to meaningful or effective outcomes for structural and propulsion system integrity. Therefore, leveraging the SIP expertise, data and assessments to support periodic review and amendment of relevant AMP elements can lead to more effective and robust outcomes and avoid duplication of effort.

6.6.4.24 To support periodic review and amendment of relevant AMP elements, the SIP should assess all relevant service experience and compare this to the assumptions that underpin the AMP intervals and tasks to ensure they remain valid. Relevant service experience data should include, but is not limited to:

1. operational usage
2. occurrences and other unserviceabilities
3. maintenance findings, results of inspections, and repair information
4. condition and health monitoring data.

6.6.4.25 Where available, and relevant to the ADF CRE, service experience from other operators should also be considered.

6.6.4.26 Note that despite the separate obligations, there is a degree of commonality between the monitoring and assessments to support ongoing validity of relevant AMP elements and those required under DASR 21.A.44(c) (see Section 6.6.3). Whereas the objective of DASR 21.A.44(c) is to ensure the MTC remains compliant with the TCB, the objective of DASR M.A.302(g) is to ensure the maintenance tasks and intervals implemented through the AMP remain valid for the individual

Superseded

operator. Nevertheless, similar expertise, data and assessment methods are required in both cases. Therefore, the SIP systems and processes (as overseen by the SIP manager) should be able to support both sets of obligations within the scope of the aircraft structure and propulsion system. The CAMO should ensure that the SIP is cognisant of their DASR M.A.302 requirements.

6.6.4.27 **Condition and Health Monitoring.** SIP condition monitoring and health monitoring elements can also support the DASR RP requirement for certain aircraft systems or components and in turn contribute to ensuring the ongoing effectiveness of the AMP. Condition / health monitoring elements can be comprised of many different techniques that will vary between the system or component(s) being monitored. Examples for structures and propulsion systems may include:

1. scheduled inspection of general component condition (including through non-destructive and remote visual inspections techniques),
2. vibration monitoring
3. monitoring of parameters such as oil / fluid / gas temperatures and pressures
4. performance monitoring
5. wear debris analysis
6. oil condition monitoring
7. embedded sensors to detect structural failures or redistribution of loads.

6.6.4.28 Condition / health monitoring requirements may be promulgated through ICA, in which case the CAMO would be expected to incorporate these requirements in the AMP, or they may be implemented as an additional measure to support reliability, availability and maintainability goals.

6.6.4.29 Note that condition / health monitoring for the purposes described in this section should not be conflated with Structural Condition Monitoring (SCM) under the MTCH DASR 21.A.44(c) obligation (refer to Annex A for further information on SCM). These two concepts serve separate purposes, but are related in that data from condition / health monitoring techniques may be a subset of the source data for SCM.

Recording Operational Usage

6.6.4.30 In addition to basic aircraft record keeping and tracking life accrual, the collection of operational usage data is required to support the MTCH obligation to undertake ongoing monitoring and periodic assessment (DASR 21.A.44(c), refer Section 6.6.3).

6.6.4.31 The nature of the usage data required will vary significantly between aircraft and propulsion system types and roles. The MTCH should define the data required for supporting the DASR 21.A.44(c) obligation, including any technical requirements for the system to collect the data. These requirements should ideally be based on OEM data or advice.

6.6.4.32 The operating organisation is responsible for ensuring that the required usage data is collected through the continuing airworthiness record system (DASR M.A.305(c)).

6.6.5 Structural / System Integrity Management Plan (SIMP)

Purpose of SIMPs under DASR

Superseded

6.6.5.1 SIMPs are a key document that assists the regulated community in the following two main ways:

1. SIMPs provide a consolidated reference for key structural and propulsion system information such as the relevant airworthiness design requirements and standards, certification outcomes and the definition and source for critical parts and AwLs.

2. SIMPs document how the SIP contributes to supporting a number of MTCH and CAMO DASR obligations. From this perspective, SIMPs should be considered subordinate to the Type Continued Airworthiness Exposition (TCAE), Continuing Airworthiness Management Exposition (CAME) and AMP document. The relevant sections of the TCAE, CAME and AMP should refer down to SIMPs and the relevant sections of the SIMPs should refer to the regulation(s) the content is supporting.

6.6.5.2 SIMPs are therefore considered AMC under DASR.

SIMP Content, Structure and Management

6.6.5.3 Given the purpose of SIMPs under DASR outlined above, DASA's policy is that it will endorse all SIMPs. However, SIMPs serve a broader purpose under Defence Policy[18], therefore, not all content will be directly relevant to the DASP.

6.6.5.4 The SIMP content that requires DASA endorsement is listed in Table 1. For ease of review and management, DASA recommends that this content be contained in a dedicated section of the SIMP. All other SIMP content should be managed by the SIP manager in coordination with CASG.

6.6.5.5 DASA expects that SIMPs will be maintained by the SIP manager, and that the MTCH and CAMO will have reviewed the content listed in Table 1 that is relevant to them prior to SIMPs being submitted for DASA endorsement. Best practice is to ensure the sections of the SIMP that are relevant to either the MTCH or CAMO are clearly identified.

6.6.5.6 An indicative SIMP amendment process is shown below in Figure 2. Note that since SIMPs serves a broader purpose under Defence Policy, DASA endorsement should not be viewed as the final step, and SIMP approval should be provided by a suitable Defence representative (notionally a senior Defence engineer within the CASG System Program Office).

Table 1: SIMP Content Requiring DASA Endorsement

Content	DASR Reference	Section 6.6 Reference
A list of the key structural / propulsion system airworthiness design standards, Defence-unique airworthiness requirements (ie derived from DASDRM) and reference to the TCB	21.A.16A 21.A.16B 21.A.17A	6.6.2.1 - 6.6.2.3
The basis of sovereign type certification for the structure / propulsion system, including: • type certification approach (eg how prior recognition was leveraged)	21.A.20	6.6.2.5 - 6.6.2.11

Superseded

• reference to structures / propulsion system CREAs and sovereign compliance demonstration evidence • reference to certification outcomes such as relevant Military Certification Review Items and Airworthiness Issue Papers • description of any outstanding structures/propulsion system certification issues and the proposed resolution pathway		
Definition of structural / propulsion system critical parts Either a list of, or reference to, the authoritative source for critical parts	21.A.41	6.6.2.15 - 6.6.2.19
Definition of structural / propulsion system AwLs, and details of what algorithms, damage equations, conversion factors or other data are encompassed within the AwL definition Reference to the authoritative source for structural / propulsion system AwLs Listing of structural / propulsion system AwLs (as required)	21.A.41	6.6.2.22 - 6.6.2.31
Description of organisations involved, and the typical process followed, for investigation of structural / propulsion system failures, malfunctions, defects and other occurrences Description of the process that allows retired, damaged or defective components to be subject to detailed examination as and when required	21.A.3A(a)	6.6.3.1 - 6.6.3.10
Details of the systems and processes for ongoing monitoring and periodic structural / propulsion system integrity assessment, including: • organisational responsibilities • input data requirements and how this data is collected and validated • periodic assessment frequency and / or trigger(s) • periodic assessment methodology • expected outputs • outcomes of, and reference to, completed assessments	21.A.44(c)	6.6.3.11 - 6.6.3.26
Details of the system and processes for tracking structural / propulsion system life-limited components, including organisational responsibilities	M.A.305(d)(4)	6.6.4.1 - 6.6.4.16

Superseded

Description of if and how the SIP supports the development and ongoing validity of relevant structural / propulsion system elements of the AMP	M.A.302	6.6.4.17 - 6.6.4.29
Process for managing amendments to the SIMP, including frequency and triggers for amendments	N/A	N/A
Any other information requested by DASA specific to the aircraft type	N/A	N/A

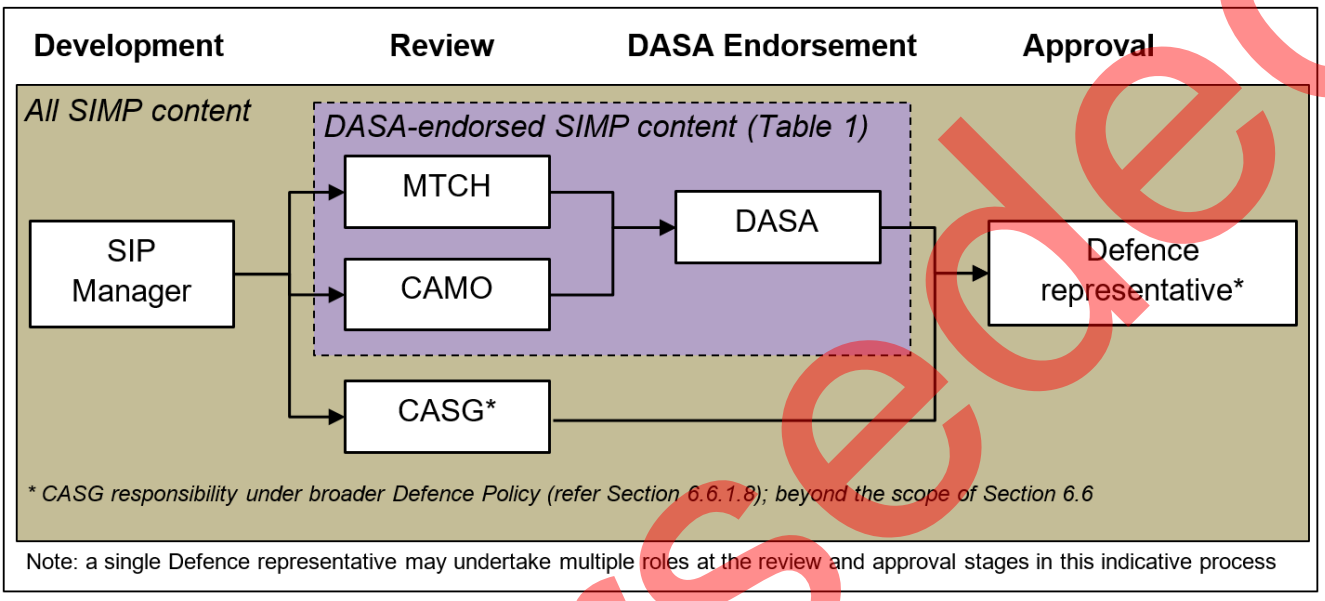


Figure 2: Indicative SIMP Amendment Process

ASIMP Volume 2 / Force Structural Maintenance Plan (FSMP)

6.6.5.7 Discussion on SIMPs until this point has been in reference to the ASIMP Volume 1 and PSIMP.

6.6.5.8 Some aircraft types also use an ASIMP Volume 2 / FSMP. These vary in scope, but typically consolidate information such as structural classifications and / or listing of critical parts, and details (including reference to substantiating and supporting data) of locations identified through analysis, test or service experience that require modification, inspection or repair. DASA supports use of an ASIMP Volume 2 / FSMP as they are a valuable document for ASIP stakeholders, however, DASA does not have any expectation that they should be maintained for every aircraft type.

6.6.5.9 In the capacity outlined above, an ASIMP Volume 2 / FSMP should simply be a consolidated reference of previously-approved design data, and therefore does not require DASA endorsement or approval.

6.6.5.10 The only exception may be where the ASIMP Volume 1 identifies the ASIMP Volume 2 / FSMP as the authoritative source for structural AwLs. This may be the case for some legacy platforms where the ASIMP Volume 2 was historically used to approve and publish AwLs (ie there is no other authoritative 'source' document(s) to refer to). In this case, the ASIMP Volume 2 / FSMP should clearly distinguish AwLs from other structural maintenance requirements. Furthermore, moving forward they should not be used as the vehicle to approve new or updated AwLs, rather they should reference the separately approved design data. In this capacity the ASIMP Volume 2 / FSMP should be treated like other manuals issued by the MTCH (DASR 21.A.57). As noted under DASR AMC 21.A.57,

Superseded

approval and issuing the manual may be separate to approval of the technical content (ie approval of the AwLs).

6.6.6 SIP-Related DASR Responsibilities

6.6.6.1 The main SIP-related DASR responsibilities are consolidated by organisation in Table 2.

6.6.6.2 Whilst SIP-related DASR responsibilities are distributed across different organisations, DASA expects that each SIP will continue to be managed and led by a single organisation (ie SIP manager appointed by CASG). Organisational responsibilities are listed below so that each regulated entity understands what they are accountable for, and so SIP managers can understand how their SIP contribute to supporting various obligations under DASR.

Table 2: Consolidated SIP-Related DASR Responsibilities

DASR Responsibility	DASR Reference	Section Reference
Applicants for MTC and MSTC / Major Changes		
Develop and submit proposed TCB for DASA approval Ensure the structures / propulsion system airworthiness design requirements specified in the DASDRM are addressed in the TCB	21.A.16A 21.A.16B 21.A.17A	6.6.2.1 - 6.6.2.3
Compliance demonstration, including ensuring that CRE differences that impact structures / propulsion systems are identified and assessed when leveraging prior CAA / MAA certification	21.A.20	6.6.2.5 - 6.6.2.11
Define and identify structural / propulsion system critical parts and AwLs for the design, consistent with the TCB and the intended Defence CRE, and submit this data to DASA as part of the application	21.A.41	6.6.2.15 - 6.6.2.19 6.6.2.22 - 6.6.2.31
Military Type Certificate Holder		
Collection, investigation and analysis of failures, malfunctions, defects and other occurrences for structures and propulsion systems, including decisions regarding examination of retired, damaged or defective parts	21.A.3A(a)	6.6.3.1 - 6.6.3.10
Occurrence reporting for structures and propulsion systems	21.A.3A(b)	
Report to DASA the results of investigation and any action taken or proposed to correct manufacturing or	21.A.3A(c)	

Superseded

design deficiencies that have resulted in a reportable occurrence		
Submit the proposed corrective action and / or required inspections to DASA for approval when an Airworthiness Directive is required to correct an unsafe condition	21.A.3B(c)	
Establish and execute system and processes for ongoing monitoring & periodic assessment throughout service life	21.A.44(c)	6.6.3.11 - 6.6.3.26
Provide technical requirements to the operating organisation / CAMO regarding the systems for monitoring usage and tracking against structural and propulsion system AwLs	Supporting M.A.305(d)(4) and M.A.305(c)	6.6.4.4 6.6.4.31
Review relevant SIMP content and ensure it supports MTCH obligations Ensure the TCAE refers to the SIMP in relevant sections	Various	6.6.5
DASR M (Operating Organisation / CAMO)		
Tracking life accrual against structural and propulsion system AwLs	M.A.305(d)(4)	6.6.4.1 - 6.6.4.16
Ensure structures and propulsion system aspects of the AMP are subject to periodic review and continue to be valid in light of operating experience	M.A.302(g)	6.6.4.17 - 6.6.4.29
Collecting operational usage data as defined by the MTCH	M.A.305(c)	6.6.4.30 -6.6.4.32
Occurrence reporting for structures and propulsion systems	M.A.202	N/A
Review relevant SIMP content and ensure it supports DASR M obligations Ensure the CAME and AMP document refers to the SIMP in relevant sections	Various	6.6.5
DASR 145 (Maintenance Organisation)		
Support collection of service experience data required for ongoing monitoring and periodic assessment, and tracking life accrual against structural and propulsion system AwLs	Supporting 21.A.44(c) and M.A.305(d)(4)	6.6.3.20 6.6.4.1 - 6.6.4.11

Superseded

Retain unserviceable or unsalvageable components that are the subject of an occurrence report until the investigation has determined that the component is not required to be retained for further examination	145.A.42	6.6.3.9 - 6.6.3.10
Occurrence reporting for structures and propulsion systems	145.A.60	N/A

Superseded

6.6.3. Integrity Programs under the DASP

6.6.1 Introduction

Purpose

6.6.1.1 Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP) activities occur throughout the complete aircraft life-cycle from requirements definition, design, verification / certification and in-service sustainment. Furthermore, an effective ASIP and PSIP aims to maximise holistic outcomes for Defence Capability, including safety, cost-of-ownership and availability outcomes. Notwithstanding these broader objectives, the purpose of Section 6.6 is limited to:

1. Describing how airworthiness-related aspects of ASIPs and PSIPs interface with the DASP.
2. Describing how an effective ASIP and PSIP assists the regulated community to meet their respective DASR obligations.
3. Providing additional guidance on elements of ASIPs and PSIPs that impact airworthiness.

Audience

6.6.1.2 Section 6.6 is relevant to:

1. Military Type Certificate Holder (MTCH) organisations
2. Continuing Airworthiness Management Organisations (CAMOs)
3. DASR 145 maintenance organisations
4. organisations involved in ASIP or PSIP activities for ADF aircraft (including CASG business units and contractor organisations).

What are Integrity Programs?

6.6.1.3 'Integrity' is defined as the level of safety, performance, durability, reliability, operability and supportability of the various air vehicle systems.

6.6.1.4 There are many threats that can compromise integrity of aircraft, including:

1. inadequate design or certification
2. material or manufacturing discrepancies
3. maintenance deficiencies or maintenance-induced damage
4. environmental degradation
5. operational usage or environment differing from design assumptions
6. procedural or management shortfalls.

Superseded

6.6.1.5 Integrity programs[1] comprise a series of time-phased tasks that occur through development, acquisition and sustainment to counter and manage these threats. The goal of integrity programs is to ensure that the desired level of integrity is maintained throughout the life of an aircraft or system to maximise capability outcomes (ie safety, cost effectiveness and mission readiness).

6.6.1.6 Whilst the goal of integrity programs focuses on overall capability, maintaining integrity of the aircraft structure and propulsion system is an essential airworthiness principle[2]. Integrity program outputs include the Airworthiness Limitations (AwL) and Instructions for Continuing Airworthiness (ICA) necessary to ensure that integrity does not reduce below the required level throughout the service life of the aircraft. As shown in Figure 1, these outputs encompass:

1. prevention (eg periodic application of corrosion-inhibiting compounds)
2. inspection (eg detection of normal or abnormal degradation)
3. repair / modification / replacement (eg restoring integrity through rectification of damage that exceeds a specified level, modification or retirement of components at specified life limits).

6.6.1.7 Not depicted in Figure 1 is the ongoing monitoring and periodic assessment components of integrity programs, which provide the feedback loop to ensure that the ICA and AwL remain valid in light of actual operational experience.

Figure 1: Maintaining Integrity In-Service

Defence ASIP and PSIP Policy

6.6.1.8 Separate to DASP requirements, it is Defence Policy (Engineering and Maintenance Manual (EMM) Section 7.29-7.38) that every Defence-registered aircraft type must have an effective and efficient Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP).

6.6.1.9 Note that historically, Defence has implemented Engine Structural Integrity (ESI) programs that focus on the high energy, non-containable structural components within gas turbine engines. In contrast, the PSIP scope includes all propulsion system components, including engine, engine accessories and propeller. Some platforms still follow the ESI philosophy, in instances where there was minimal benefit to be gained from transitioning.

6.6.1.10 The principal objective of this policy is to support capability outcomes; including safety, capability delivery and assurance, and cost-effectiveness. On behalf of Capability Managers, Capability Acquisition and Sustainment Group (CASG) is responsible for ensuring effective and efficient programs are implemented and executed, and will appoint organisations as ASIP and PSIP managers to assist in discharging this responsibility. Typically, CASG will appoint the contractor or

Superseded

organisation providing aircraft / propulsion system through-life support as the ASIP and PSIP manager, but in some cases these responsibilities may be retained by CASG.

6.6.1.11 Compared to the civil sector, military operations and the Defence context typically dictate the need for more proactive and complex integrity programs. This is due to the propensity for higher operational usage variability and Configuration, Role and Environment (CRE) deviating from design assumptions, plus Defence's desire to more closely specify and control the useful service life and maintain independence of military action. MIL-STD-1530D (ASIP) and MIL-STD-3024 (PSIP) provide exemplar frameworks for meeting the Defence Policy objectives and requirements.

6.6.1.12 Note that for brevity, the collective abbreviations SIP for the ASIP and PSIP, and SIMP for the ASI and PSI Management Plans (ie the document that describes the program) are used hereon in.

Using Section 6.6

6.6.1.13 Acknowledging the broader Defence Policy mandate and objectives outlined above, the purpose of Section 6.6 is to describe how the SIP interface with the DASP and provide guidance to assist the regulated community to meet their respective DASR obligations.

6.6.1.14 Regulations and obligations related to integrity programs are distributed throughout DASR and guidance material. Effective SIPs will therefore contribute to supporting compliance against a number of DASR 21 and DASR M requirements. This Section expands upon relevant regulation, Acceptable Means of Compliance (AMC) and Guidance Material (GM).

6.6.1.15 DASA's scope of interest with respect to SIPs is how these programs contribute to airworthiness of the aircraft structure and propulsion system; in particular, how airworthiness is established (initial airworthiness) and then maintained in-service (continued and continuing airworthiness).

6.6.1.16 Section 6.6 is intended to be used by:

1. Military Type Certificate Holders (MTCHs) and Continuing Airworthiness Management Organisations (CAMOs) to understand how the SIPs for their platform should or can support their respective DASR obligations
2. DASR 145 maintenance organisations to understand how their activities support SIPs
3. CASG and industry (particularly SIP managers) to understand how SIPs interface with DASR and the associated responsibilities and requirements.

6.6.1.17 Whilst Section 6.6 describes how an effective SIP can simultaneously support MTCH and CAMO obligations, this should not be construed as suggesting that SIP execution should be fragmented within or between organisations (eg government MTCH versus CAMO, or between teams within a contracted support provider).

6.6.1.18 This Section is applicable to all aircraft operating under a Military Type Certificate (MTC), including certified category Unmanned Aircraft Systems (UAS). In accordance with DASR UAS.30(b)3, Specific Type A UAS must comply with DASR initial and continuing airworthiness regulations as directed by DASA. As outlined in the Initial and Continuing Airworthiness Requirements for Specific Category UAS Factsheet, normal practice is for the UAS operating permit applicant to propose a suitable extent of compliance for DASA approval. UAS operating permit applicants should consider tailoring and adapting the concepts outlined in this Section, based on each specific application, as part of developing their broader proposal for initial and continuing airworthiness requirements.

Superseded

6.6.1.19 The remainder of this Section is structured as follows:

1. Section 6.6.2: SIP considerations with respect to initial airworthiness
2. Section 6.6.3: SIP considerations with respect to continued airworthiness
3. Section 6.6.4: SIP considerations with respect to continuing airworthiness
4. Section 6.6.5: guidance on SIMPs under DASR
5. Section 6.6.6: consolidated list of the main SIP-related DASR responsibilities
6. Annex A and Annex B: additional guidance specific to structures and propulsion systems respectively.

6.6.2 Integrity Programs and Initial Airworthiness

Type Certification Basis

6.6.2.1 The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to be issued a Military Type Certificate (MTC). The TCB will normally include a primary certification code and any supplementation required for the Defence context and Configuration, Role and Environment (CRE) (refer DASR 21.A.17A). The Defence Aviation Safety Design Requirements Manual (DASDRM) lists the primary certification codes recognised by DASA and prescribes the supplementary design requirements that must be applied as special conditions (refer DASR 21.A.16B) to account for the Defence context and CRE.

6.6.2.2 The primary certification codes recognised by DASA provide a sound basis for the safe design of structures and propulsion systems for Defence aircraft. Subject to tailoring for the Defence CRE, these codes all are sufficient to ensure that an adequate level of integrity is established during design and certification.

6.6.2.3 However, recognised codes may require supplementation related to in service SIP monitoring and assessment, and tracking life accrual. The DASDRM Section 3 Chapters 12 and 13 provide these supplementary airworthiness design requirements and further information on type certification for structures and propulsion systems respectively. Note that these requirements are general in nature, and a deliberate assessment should be conducted based on the aircraft type, underlying airworthiness code and intended Defence CRE to determine the specific TCB wording and / or standards. Applicants are recommended to engage with DASA early in the TCB development process.

6.6.2.4 Section 7.2 also provides general information on the development of the certification basis for MTC, Military Supplemental Type Certificate (MSTC) or major change to MTC applications.

Compliance Demonstration and CRE Assessment

6.6.2.5 Along with the primary certification code and standards used, the suitability of design analysis and verification for the Defence CRE contributes significantly to the level of integrity, and therefore safety, achieved throughout the service life.

6.6.2.6 Defence rarely has direct input into the original design requirements for new aircraft, and often receives changes to a MTC and repair designs that are not exclusively designed for Defence. Unless a design has explicitly accounted for the Defence CRE, then a CRE Assessment (CREA) is required to ensure the design is safe for the intended Defence use. This is an essential step in

Superseded

leveraging prior Civil / Military Aviation Authority (CAA / MAA) certification for the purpose of obtaining a MTC or MSTC / major change approval (refer to DASR 21.A.20 and Section 7.2 for further information).

6.6.2.7 CREAs involve assessing whether the intended Defence CRE is compatible with the as designed CRE. For aircraft structures and propulsion systems, the CREA should examine the configuration and role related usage, loads and environment such as operating weights, altitudes, speeds; and repeated manoeuvre, dynamic, gust and thermal environments. Basic comparisons of aircraft role(s), mission mix or flight profiles (as articulated in the in the Statement of Operating Intent and Usage (SOIU)) will usually not provide adequate fidelity to identify meaningful CRE differences for structures and propulsion systems, and will therefore be insufficient in isolation. Fatigue degradation in particular can be highly sensitive to small changes in usage, loads and environment.

6.6.2.8 CREAs for structures and propulsion systems therefore usually require detailed and quantitative analysis. The SOIU should be considered a starting point for understanding the intended CRE, and an attempt should be made to better-quantify anticipated usage, loads and environment to the extent necessary, with greater fidelity than the basic information in the SOIU (eg using data from similar aircraft types). The aim should be to undertake a quantitative comparison between the as-designed and intended CRE that, for example, allows conclusions to be made regarding relative severity and impact on AwLs.

6.6.2.9 The CREA is the responsibility of the applicant for a MTC or MSTC / major change when leveraging prior certification. However, applicants should ensure that the analysis, which supports the structures or propulsion system CREA, is developed by a suitably-experienced organisation with access to the requisite data. This will likely require support from the aircraft / engine Original Equipment Manufacturer (OEM), a design organisation with sufficient technical capability and access to relevant data, and / or the expertise available within the SIP.

6.6.2.10 **Inconclusive CREAs.** CREAs for structures and propulsion systems sometimes cannot conclude with sufficient confidence whether the intended Defence CRE is compatible with the as-designed CRE. This often occurs during initial acquisition due to an inability to describe the intended Defence CRE with adequate fidelity. In this situation, follow-on activities should be conducted in service to obtain and assess further data, and should be managed through the SIP. Further assessment may only be possible once the ADF operational concept is fully defined and / or once a sufficient quantity of in-service data is available. In this situation a decision will need to be made as to whether:

1. there is a suitable basis to establish compliance for the TCB requirements affected by the inconclusive CREA outcome, or if they need to remain non compliant until follow-on activities are conducted
2. mitigating actions (eg additional lifing factors) are required to eliminate or otherwise minimise any associated risks so far as is reasonably practicable
3. there is any residual elevated risk that needs to be retained by the appropriate risk management authority.

6.6.2.11 These decisions will require experienced professional judgement and will generally be based on the level of uncertainty with the CREA and a qualitative risk assessment. Applicants are recommended to engage with DASA early when there is a lack of data or uncertainty with CREAs.

Military Type Certificate

6.6.2.12 As per DASR 21.A.41 the MTC includes:

Superseded

1. the type design (DASR 21.A.31), encompassing:
    i. the drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the TCB
    ii. information on materials, processes and methods of manufacture and assembly necessary to ensure the conformity of the product
    iii. an approved airworthiness limitations section of the ICA (as defined by the applicable airworthiness codes)
2. operating limitations
3. the Type Certificate Data Sheet (TCDS)
4. the TCB.

6.6.2.13 Under the DASR definition, the MTC does not include:

1. ICA (aside from those requirements identified as AwLs)[3]
2. off-board systems and processes, with the exception of any data which is defined as part of the AwLs (refer Section 6.6.2.24.d.(ii)), such as the SIP systems for ongoing monitoring and periodic assessment
3. organisational expositions and SIMPs.

6.6.2.14 As described at Section 6.6.2.3, the TCB requirements should encompass the DASDRM design requirements related to key SIP[4] elements. Whilst compliance must be established for these TCB requirements in order to obtain a MTC, these SIP elements do not subsequently form part of the type design and MTC[5] (with the exception of any data defined as AwLs, as discussed at Section 6.6.4.5). Nevertheless, the SIP manager, on behalf of the MTCH, should ensure that all relevant SIP elements continue to comply with the relevant TCB requirements, and that alterations to the SIP systems / processes are managed with appropriate rigour, including documentation in the DASA endorsed SIMP.

Critical Parts

6.6.2.15 **Identification of Critical Parts.** It is vital that Defence understands which parts of the aircraft structure and propulsion system are essential for safe flight and therefore could have a significant impact on safety if they were to fail or not perform their intended function. This is important for effective execution of the SIP and assisting regulated entities in discharging their respective obligations. Note that structural or propulsion system critical parts are not limited to those identified as being susceptible to fatigue failure, but include all parts irrespective of their potential failure mode(s) or 'critical characteristic'. It is the consequence following failure or inability to perform the intended function that is the key factor.

6.6.2.16 The primary consideration for defining what constitutes a structural or propulsion system critical part should be the certification basis for the aircraft and propulsion system. However, noting that not all airworthiness codes are equivalent, and some are not explicit on definition of critical parts, general definitions for structural and propulsion system critical parts are provided in DASR AMC 21.A.41. Also refer to Annex A and Annex B to this Section for further information on structural critical parts and propulsion system critical parts respectively.

Superseded

6.6.2.17 Structural and propulsion system critical parts should normally be defined by the responsible OEM / design organisation and it is important to understand the criteria used for this process. The applicant should ensure the definition used by the OEM / design organisation is consistent with the TCB and / or the general definitions provided in DASR AMC 21.A.41. Otherwise, a dedicated activity may be required to identify critical parts using an acceptable definition; in this instance, applicants are encouraged to engage with DASA early.

6.6.2.18 Note that some definitions for 'propulsion system' include drive system. However, as per the definitions used by DASA, drive system structural critical parts should be managed under the ASIP. More generally, the OEM responsible for a given part is the best indicator of which SIP is most appropriate (ie engine or propeller OEM = PSIP and airframe OEM = ASIP). Note also that there is nothing preventing structural and propulsion critical parts being managed under an integrated program.

6.6.2.19 The applicant for a MTC or MSTC / major change should identify a list of critical parts, consistent with the TCB and the intended Defence CRE, and submit this to DASA as part of the application (refer DASR AMC 21.A.41 and AMC1 21.A.97). The definition and listing of critical parts should be included, either directly or by reference, in the SIMP. If the list of structural or propulsion system critical parts is provided as part of a broader 'safety-critical' item list for the aircraft type, then the parent aircraft system for each item should be identified.

6.6.2.20 **Maintaining Critical Parts List.** The MTCH should maintain and update the list of critical parts for the MTC based on design changes (including introduction of alternate part numbers), repairs, new / revised analysis or in service experience. Design changes and new repair designs should identify any new critical parts using the same criteria as initially used to obtain the MTC. The MTCH should also identify new critical parts as required through undertaking their continued airworthiness obligations under DASR 21.A.3A and DASR 21.A.44(c) (eg occurrences or new / revised analysis may indicate that original assumptions regarding a part's function or potential failure mode(s) are incorrect).

6.6.2.21 **Use of Critical Parts List.** The regulated community can use the definition and published[6] list of critical parts to assist in discharging some of their respective obligations. This includes, but is not limited to, assisting with:

1. understanding how the broader SIP contributes to maintaining airworthiness under DASR
2. identification of AwLs by applicants for a MTC or MSTC / major change
3. ongoing management of AwLs by MTCHs (eg identifying if a new maintenance requirement should be treated as an AwL)
4. design and classification of modifications and repairs by design organisations
5. identification of critical maintenance task candidates for the purpose of determining error capture methods (DASR AMC M.A.302(d)(3))
6. decisions regarding deferred defects or 'endanger flight safety' assessments by CAMOs or DASR 145 maintenance organisations (DASR M.A.801(h) and DASR 145.A.50(a))
7. identification of reportable occurrences by all regulated entities.

Airworthiness Limitations

Superseded

6.6.2.22 **AwL Definition.** AwLs are established through the certification process as being essential for preventing and / or detecting failures that may lead to an unsafe condition. AwLs may apply to many systems including the aircraft structure, propulsion system, fuel system and wiring. For aircraft structures and propulsion systems, AwLs will be associated with critical parts. A common misconception is that structural and propulsion system AwLs are only fatigue-related. AwLs are established to prevent any potential unsafe condition developing, which for structures and propulsion systems can relate to any threat including, but not limited to: fatigue, environmental degradation (eg corrosion, hot-corrosion, deterioration of organic compounds, etc), disbonding, mechanical wear, creep, flutter or other aeroelastic instability, vibration / aeroacoustics and accidental / discrete-source damage.

6.6.2.23 Note that the term Certification Maintenance Requirement (CMR) has a specific meaning under civil airworthiness codes for transport-category aircraft (refer Section 7.2.5.3). Applicants should therefore consider whether it is appropriate to use this term for aircraft structure and propulsion system mandatory maintenance actions, especially for civil-derivative aircraft types.

6.6.2.24 For aircraft structures and propulsion systems, AwLs are considered to encompass (refer DASR AMC 21.A.41):

1. mandatory modification, retirement or replacement intervals
2. mandatory inspection requirements: including inspection interval(s) and the inspection method
3. mandatory post-flight inspections and maintenance actions associated with any use of either the rated 30 second or 2 minute one-engine-inoperative power (for rotorcraft engines with such power ratings)
4. the definition of the interval under a. and b. above includes:
    i. the interval metric[7]
    ii. any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

6.6.2.25 The inspection method under Section 6.6.2.24.b is considered to include the inspection technique[8], reference standards and any other inspection procedure parameters, which impact the detectable flaw size or probability of detection.

6.6.2.26 Tracking life accrual[9] against AwL intervals for structural or propulsion system critical parts often involves algorithms, damage equations, conversion factors or other similar data. Under the definition above, any data that is inextricably linked with calculation of life accrual is considered mandatory and therefore should be treated and managed as part of the AwL. Some examples include:

1. algorithms and look-up data which convert parametric or strain time-history data into per-flight damage increments
2. flight hour conversion factors for lifing parameters which are difficult to monitor flight-by-flight
3. engine rotational speed ‘gates’ used to define full or partial cycles
4. time-in-temperature matrices to track creep or thermal fatigue life accrual for engine hot-section parts

Superseded

5. fill-in data or factors used to account for missing data.

6.6.2.27 AwLs for aircraft structure can include mandatory actions for specific structural locations or parts (eg modification, replacement or inspection) and an overall safety-based life limit for the aircraft. The overall safety-based life limit is often referred to as the Limit of Validity for civil certified aircraft.

6.6.2.28 **Identification of AwL.** Structural and propulsion system AwLs should normally be defined by the responsible OEM / design organisation. The applicant for a MTC or MSTC / major change should ensure that (refer DASR AMC 21.A.41, DASR AMC1 21.A.97):

1. structural and propulsion system AwLs have been identified and are segregated and clearly distinguishable from other ICA

2. structural and propulsion system AwLs are consistent with the TCB and the intended Defence CRE

3. the relevant data is collated and submitted to DASA as part of the application.

6.6.2.29 Once approved by DASA, the definition and list of AwLs should be included, either directly or by reference, in the TCDS and SIMP.

6.6.2.30 Structural and propulsion system AwLs can often be highly sensitive to small changes in usage, loads and environment, and therefore a detailed and quantitative CREA is typically required (refer Section 6.6.2.8). Note that this includes all aspects of the AwL, including the algorithms, equations, factors or other data to calculate life accrual, as these too can be impacted by differences in CRE. For example, damage look-up data, factors in damage equations or fill-in data may be based on mission profile severity, which will vary between different operators.

6.6.2.31 Depending on the underlying airworthiness code, AwL terminology may differ, and mandatory requirements may not be explicitly segregated within the ICA provided by the OEM. In these cases, the applicant should define a list of structural and propulsion system AwLs consistent with the definition of Section 6.6.2.24. A well-defined list of critical parts will assist with this activity. Ensuring that AwLs are clearly identified as such, and segregated from the remainder of the ICA, assists the regulated community to fully discharge their respective obligations and ensures mandatory requirements are not altered or deferred without appropriate rigour and assurance.

6.6.2.32 **Ongoing Validity of AwLs.** Ensuring AwLs remain compliant with the TCB and appropriate for the Defence CRE is a MTCH continued airworthiness obligation. AwLs should be updated or introduced as required based on design changes, repairs, new / revised analysis or in service experience.

6.6.2.33 **New or updated structural and propulsion system AwLs.** Any change to a MTC or repair design that introduces or alters an AwL (increase or decrease) should be classified as a major change / repair (per DASR GM 21.A.91 and DASR GM 21.A.435). Any alteration of the parameters or data that are encompassed by the definition at Section 6.6.2.24 is also considered a change to the AwL.

6.6.2.34 It is important to ensure that any change or repair that impacts AwLs has explicitly accounted for the Defence CRE (as outlined in Sections 6.6.2.5-6.6.2.9).

6.6.2.35 Changes / repairs that introduce or alter inspection-based AwLs for structures and propulsion systems require special attention as there is an inextricable link between the inspection interval(s) and method (refer Section 6.6.2.25). Design organisations should ensure that suitably-

Superseded

qualified and competent personnel oversee these changes / repairs and that suitable standards are used which govern the parameters that define the inspection method.

6.6.2.36 Allowing aircraft to exceed an AwL should not be approved as a change or repair unless compliance with the TCB can be demonstrated. Exceeding an AwL invariably involves an elevated level of risk (beyond that inherent in the TCB) and should only be considered where there is a compelling imperative to continue operations. Where compliance with the TCB cannot be shown, a change or repair approval is not an appropriate instrument. In this case, a Military Permit to Fly should be considered.

6.6.3 Integrity Programs and Continued Airworthiness

Investigation of Occurrences

6.6.3.1 **Overview.** Collection, investigation and analysis of failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on airworthiness (collectively referred to as 'occurrences' hereafter) by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed (DASR 21.A.3A(a)).

6.6.3.2 Any occurrence that is deemed to have resulted in, or may result in, an unsafe condition must also be reported to DASA and other organisations required by the implementing regulations. Another organisation may have already deemed an occurrence as reportable to DASA, or the occurrence may be deemed reportable by the relevant DASR 21 approval holder in accordance with DASR 21.A.3A(b).

6.6.3.3 Refer to DASR AMC 21.A.3B(b) for further detail on the definition of an unsafe condition and DASR GM 21.A.3B(b) for guidance on determining when an unsafe condition exists. DASR AMC GR.40 also provides examples of reportable occurrences. DASR AMC GR.40 Section II (Technical) and Section III (Aircraft Maintenance and Repair) are most applicable to structures and propulsion systems. Note that the DASR AMC GR.40 examples should not be used by design organisations like a 'checklist' for determining when a report has to be made to DASA. After receipt of reports from the primary sources of information, the design organisation will normally perform some kind of analysis to determine whether an occurrence has resulted or may result in an unsafe condition (refer guidance at DASR GM 21.A.3B(b)) and if a report to DASA should be made.

6.6.3.4 When a reportable occurrence results from a manufacturing or design deficiency, then the DASR 21 approval holder must also report to DASA the results of its investigation and any action it is taking, or proposes to take, to correct the deficiency (DASR 21.A.3A(c)(1)). Furthermore, when an Airworthiness Directive is required to correct an unsafe condition the DASR 21 approval holder must submit the proposed corrective action and / or required inspections (including the necessary details) to DASA for approval (DASR 21.A.3B(c)(1)). Further discussion on occurrence reporting and determination of unsafe conditions is beyond the scope of this Section.

6.6.3.5 **Structures and Propulsion Systems Guidance.** Investigation and analysis of occurrences for aircraft structure and propulsion systems often requires specific skills due to the complex nature of these systems and their associated failure modes, and the specialised design methods and tools typically employed. The MTCH should ensure that all structural and propulsion system occurrences are investigated and analysed using the expertise available within the SIP and / or the responsible design organisation (if separate).

Superseded

6.6.3.6 There have been many cases throughout aviation history where catastrophic structural or propulsion system failures were preceded by little or no warning in terms of prior defects or failures. Therefore, whilst trending is important (refer Section 6.6.3.8), each individual structural and propulsion system occurrence should be promptly collected, investigated and analysed.

6.6.3.7 Investigation and analysis should compare the actual occurrence with the assumptions made during design and type certification, and determine if the MTC (including AwL and operating limitations) or ICA need to be amended.

6.6.3.8 The MTCH should also ensure that all relevant occurrences and data are captured by the SIP for ongoing monitoring and periodic assessment (refer Sections 6.6.3.11-6.6.3.26). This ensures that the SIP identifies any risks and hazards associated with the type design that are only evident through longer-term aggregation and trending of occurrences.

6.6.3.9 **Retention of Components.** Thorough and detailed examination (ie forensic techniques) is often crucial to understand the root-cause for failures in structural or propulsion system parts and prevent further failures occurring. Processes should therefore be established that allows retired, damaged or defective components to be examined as and when required.

6.6.3.10 The MTCH, and / or the responsible design organisation, should determine when an unserviceable or unsalvageable component (refer DASR 145.A.42) needs to be subject to further examination as part of an investigation. Furthermore, the MTCH or relevant design/repair approval holder should advise the CAMO and in turn, DASR 145 organisation as to when the decision has been made that such components are no longer required for investigation. Note that where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should retain the component until the investigation has determined that the component is not required to be retained for further examination (refer DASR 145.A.42).

Ongoing Monitoring and Periodic Assessments

6.6.3.11 **Overview.** OEMs make many assumptions during design regarding factors such as operational usage, loads and environment; material performance; and manufacturing and assembly processes in order to demonstrate compliance with the TCB and develop operating limitations and AwLs.

6.6.3.12 In-service experience and additional testing or analysis may show that certain assumptions are no longer valid. Furthermore, the OEM's assumptions cannot always specifically account for the usage and environment of every operator. This is especially the case for military aircraft as role(s), tactics and environment can vary significantly between operators and evolve over time. Operations for many ADF aircraft have historically been shown to be different and, in some cases, significantly more severe than the OEM design assumptions.

6.6.3.13 It is essential to identify, and act upon as required, any instances where the design assumptions are no longer valid throughout the service life. The MTCH is responsible for ensuring the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment (DASR 21.A.44(c)). The purpose of these two facets include:

1. ongoing monitoring of service experience in order to collect the data required for, and to determine the periodicity of, assessments

2. periodic assessment to ensure that the assumptions made during design and certification that could affect the integrity of structural and propulsion system critical parts remain valid for the Defence CRE.

Superseded

6.6.3.14 Assumptions may be identified as no longer valid for the entire global fleet, a subset of the global fleet, or just the Defence CRE. The scope of the MTCH obligation under DASR 21.A.44(c) is ensuring that the Defence type design and MTC remains compliant with the TCB. A particular focus is ensuring the operating limitations and AwLs established during certification remain valid for the Defence CRE.

6.6.3.15 The MTCH is accountable for defining the system and processes for ongoing monitoring and periodic assessment in accordance with DASR 21.A.44(c) and the TCB requirements derived from the DASDRM. For new acquisitions, the CASG Project Office will typically be responsible for ensuring the necessary systems and processes are in place and fit-for-purpose prior to obtaining a MTC.

6.6.3.16 In practice, execution of the DASR 21.A.44(c) obligation should be fulfilled through the broader SIP for each aircraft type. The SIP manager should ensure that the SIP systems and processes for monitoring and assessment continue to meet the requirements of DASR 21.A.44(c) and the TCB.

6.6.3.17 **Ongoing Monitoring.** Ongoing monitoring involves collecting relevant service experience data, and evaluating the data to identify significant events, exceedances of baseline assumptions, trends or anomalies that require more detailed assessment. These activities should occur continuously throughout the service life and result in the following outputs:

1. trigger and / or determine the frequency at which more detailed periodic assessments should be performed
2. identify any events, exceedances of baselines, trends or anomalies that require further investigation as part of the periodic assessments
3. collate and store all relevant service experience data required for periodic assessments, and future trending and analysis purposes.

6.6.3.18 Relevant service experience data collected and evaluated through ongoing monitoring should include, but is not limited to:

1. operational usage
2. failures, malfunctions, defects and other occurrences, and other unserviceabilities
3. maintenance findings, results of inspections and repair information
4. condition and health monitoring data
5. detailed inspection or testing of aircraft / parts with service history.

6.6.3.19 The usage data required for ongoing monitoring and periodic assessment is often extensive and complex. Integrity of structural and propulsion system critical parts for a given aircraft type can be impacted by a variety of usage and environmental factors, so collection of a large number of usage parameters is often required to compare to all the relevant design assumptions. Furthermore, the quantity of data required may vary from a statistically-representative sample through to data for all operations.

6.6.3.20 The MTCH should define the data required for the purposes of DASR 21.A.44(c) and establish the necessary arrangements with the operating and maintenance organisations to collect this data through the SIP. The SIMP should outline the specific responsibilities for each aircraft type.

6.6.3.21 Where available, and relevant to the ADF CRE, service experience from other operators should also be considered.

Superseded

6.6.3.22 **Periodic Assessment.** Periodic assessments involves detailed analysis to test whether the assumptions made during design and certification that could affect the integrity of structural and propulsion system critical parts remain valid based on the intended and actual Defence CRE.

6.6.3.23 Periodic assessments should identify whether there is a need to update the MTC (including AwLs and operating limitations), ICA or monitoring provisions (eg tracking life accrual or health monitoring) in order to ensure continued compliance with the TCB. These subsequent updates are separate to the periodic assessment process and should be conducted in accordance with the relevant DASR.

6.6.3.24 Periodic assessments should also identify when there is a need to update the systems or processes for ongoing monitoring to ensure the necessary data is being collected.

6.6.3.25 Access to a minimum level of type design data and suitable expertise is necessary to undertake the analysis required. This should be considered by the MTCH when identifying organisations to undertake periodic assessment.

6.6.3.26 Refer to Annex A and Annex B for more detailed guidance regarding ongoing monitoring and periodic assessment for structures and propulsion systems.

6.6.4 Integrity Programs and Continuing Airworthiness

Tracking Status of Service Life-Limited Components

6.6.4.1 **Tracking against Structural and Propulsion System AwLs.** The operating organisation is accountable for recording the status of service life-limited components; ie tracking life accrual against AwLs (DASR M.A.305(d)(4)). 'Service life-limited' parts under DASR refers to parts that as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved life consumption unit. These mandatory actions are referred to as AwLs throughout this Section.

6.6.4.2 Variation in actual aircraft usage and configuration can have a significant impact on when AwL actions (such as component replacements or inspections) need to be performed. The system for tracking life accrual should ensure that individual aircraft or components (as relevant) do not exceed AwL intervals. For aircraft structures and propulsion systems, this often requires capturing and analysing a variety of usage parameters in addition to measuring accrual of AwL interval metrics such as flight hours, flight / engine cycles or landings to ensure the underlying basis of the AwL interval is not exceeded. Many AwL intervals are promulgated in 'simple' metrics such as flight hours or flight / engine cycles, however, actual damage / life accrual for the failure mechanism in question is usually more complex and varies based upon a range of operational factors. Therefore, additional usage parameters must often be captured and analysed to ensure individual aircraft or components are not exceeding the underlying basis of the AwL. For structural and propulsion system AwLs, the SIP for each aircraft type should support this obligation through calculation of the relevant lifing metrics and / or data analysis.

6.6.4.3 **System Requirements.** The philosophy and complexity of the system[10] required for tracking life accrual may vary significantly based on the certification basis, the aircraft / propulsion system type and role, and the nature of each individual AwL. Furthermore, tracking the status of structural and propulsion system life-limited critical parts for military aircraft is typically more complex than that required for civil aircraft. Additional guidance and examples for structures and propulsion systems are provided in Annex A and Annex B respectively.

Superseded

6.6.4.4 The DASDRM structures and propulsion system chapters each include an essential airworthiness design requirement on tracking life accrual against critical part AwLs. The MTCH should provide the technical requirements for the system, including the usage parameters that need to be captured, with these requirements ideally being based on OEM data or advice.

6.6.4.5 As outlined in Section 6.6.2.24.d.(ii), any algorithm, equation, factor or other engineering data which must be used to calculate life accrual is considered part of the AwL and therefore MTC. However, the broader system for tracking life accrual that is built around this data is generally not considered part of the MTC.

6.6.4.6 Tracking life accrual usually requires a complete usage history for each individual aircraft / component. Therefore, relevant data from all ground and flight operations should be captured (including pre-delivery usage if feasible) and the system should conservatively account for missing data. As identified at Section 6.6.2.26, fill-in data / factors used to account for missing data is typically considered part of the AwL. Significant quantities of missing data can impact the accuracy of life accrual, and therefore targets for valid data capture should be established and monitored[11].

6.6.4.7 Depending upon the type of AwL, tracking life accrual could include both tracking total life and tracking life since last maintenance action (eg for repeat inspection intervals).

6.6.4.8 When critical parts can be transferred between aircraft or engines then the system should have the ability to track life accrual at the component level.

6.6.4.9 Life accrual for structural and propulsion system critical parts can be sensitive to small variations in usage or configuration. Therefore, the system for tracking life accrual should be subject to initial validation. Validation should test the entire system (on-board and off-board elements) in an end-to-end fashion; ie from raw / input data through to the AwL lifing metric outputs. Validation should ensure that the system produces reliable, repeatable and suitably conservative outputs so that AwL intervals are not exceeded in-service.

6.6.4.10 Even validated systems can result in incorrect outputs if subject to bad input data. Therefore, the system should include means to identify and account for missing or erroneous input data, and include quality checks of processed data.

6.6.4.11 The period between a ground / flight operation and updated life accrual data being available will vary between platforms. In some cases near real-time update of life accrual data will be available following operations, whilst other cases will involve more lag (eg when processes require engineer-in-the-loop or complex data processing to produce life accrual outputs). Therefore, the system for tracking life accrual should take into account reporting lag to ensure that AwLs are not exceeded.

6.6.4.12 **Relationship between Continuing and Continued Airworthiness Obligations.** The operating organisation is accountable for ensuring that individual aircraft / components do not exceed the underlying basis of AwL intervals. This is a continuing airworthiness obligation as it relates to the aircraft complying with the airworthiness requirements in force and being in a condition for safe operation. Whilst the operating organisation is accountable, the SIP for each aircraft type should support this obligation through calculation of the relevant lifing metrics and / or data analysis when this level of complexity is required.

6.6.4.13 There is also an obvious relationship with the MTCH *continued* airworthiness obligation to ensure that AwLs remain valid for the Defence CRE. The interaction between the *continuing* versus *continued* airworthiness processes to ensure individual aircraft / components do not exceed the underlying basis of AwL intervals will vary between platforms and SIP philosophies. For some

Superseded

platforms, if SIP analysis indicates that individual aircraft may exceed the underlying basis of an AwL, then the MTCH may revise the AwL (for all aircraft) so that it fully encompasses all outliers in terms of life accrual rates. For other platforms, the CAMO may routinely adjust scheduled maintenance (ie maintenance events which correspond to when AwL actions are undertaken) based on individual aircraft life accrual rates and SIP outputs, to ensure no aircraft / components exceed the underlying basis of the AwL interval.

6.6.4.14 For structures and propulsion systems, there will often be significant overlap in terms of the usage parameters and data analysis required to fulfil both continuing and continued airworthiness functions. Therefore, a single SIP system[12] can simultaneously be supporting both continuing and continued airworthiness responsibilities. Where this is the case, those executing the SIP must remain cognisant of the separate DASR responsibilities the single system is supporting.

6.6.4.15 **Used Critical Parts.** Acquisition of critical parts with prior (non-ADF) usage poses particular challenges for tracking life accrual against AwLs. Used critical parts can enter the ADF system in a number of ways, including acquisition of used aircraft or engines, purchase of used spares, or participation in a global parts-pooling arrangement. Even though the headline life-consumption metric will be provided for used components, the ability to understand the actual life accrual against the underlying basis of the AwL interval generally requires more detailed usage data.

6.6.4.16 Along with any relevant previous configuration and maintenance records, the CAMO should endeavour to obtain detailed usage parameters that enables the severity of non-ADF usage to be sufficiently understood. The CASG Project Office should undertake this on behalf of the CAMO for acquisition of used aircraft/engines. The CAMO may not necessarily need to hold this data if the organisation managing the system has access to the non-ADF usage data (eg global sustainment provider). If such data cannot be obtained, then the CAMO should seek advice from the MTCH and expertise available within the SIP to ensure appropriately-conservative assumptions regarding life accrual for non-ADF usage are implemented.

Aircraft Maintenance Programme

6.6.4.17 This section describes how an effective SIP can support the development and ongoing validity of relevant Aircraft Maintenance Programme (AMP) elements. Due to the broader Defence SIP Policy mandate, SIPs will often overlap with CAMO Reliability Programme (RP) obligations for the aircraft structure and propulsion system (ie SIP data and assessments can be leveraged to ensure relevant AMP elements remain effective). Therefore, CAMOs should be aware of the existing SIP scope and functions for each aircraft type, and may leverage the SIP to reduce the need for separate RP processes where appropriate. The AMP should identify where and how SIP supports the CAMO RP requirement (DASR M.A.302(f)) for the aircraft structure and propulsion system[13].

6.6.4.18 **AMP Compliance with Mandatory Requirements.** The AMP must establish compliance with mandatory requirements (ie AwLs) and identify these as such to prevent inadvertent variation[14]. The SIP, through the SIMP and TCDS, will provide the definition of structural / propulsion system AwLs, listing of AwLs as required, and reference to authoritative source for AwLs. This should assist the CAMO in identifying mandatory requirements (including changes thereto) and their authoritative source in the AMP.

6.6.4.19 Note that AwLs are developed as part of the certification process and should not be extended or altered by the CAMO. Whilst there may be instances where the RP identifies the need to update AwLs, this is more often initiated through MTCH continued airworthiness obligations (refer Section 6.6.3), and in all cases should be developed and approved as a major change to the MTC.

Superseded

6.6.4.20 **Basis of AMP Tasks and Intervals.** The AMP should be established based on anticipated ADF utilisation of the aircraft[15]. When developing an AMP, the SIP can provide data and assessments that will assist the CAMO in ensuring that structural and propulsion system AMP tasks and intervals reflect anticipated ADF utilisation.

6.6.4.21 Furthermore, whilst the AMP tasks and intervals will normally be based upon the OEM's recommended maintenance programme[16], the CAMO may need or desire to introduce additional or alternative instructions. For aircraft structures and propulsion systems, the SIP expertise, data and assessments can provide the supporting information for alternative and / or additional tasks and intervals proposed by the CAMO (DASR AMC M.A.302(d)).

6.6.4.22 **Periodic Review and Amendment of the AMP.** The AMP must be subject to periodic review to ensure it remains valid in light of operating experience[17], instructions issued by DASA and any new and / or modified maintenance instructions promulgated by the MTCH or other design approval holder (DASR M.A.302(g)). For aircraft structures and propulsion systems, the SIP expertise, data and assessments can support the periodic review and amendment of relevant AMP elements.

6.6.4.23 Some RP approaches used for other aircraft systems may not be appropriate for structures and propulsion systems. For example, systems approaches for establishing alert levels / performance standards, use of mean-time-between-failure style metrics, and statistical analysis techniques will usually not lead to meaningful or effective outcomes for structural and propulsion system integrity. Therefore, leveraging the SIP expertise, data and assessments to support periodic review and amendment of relevant AMP elements can lead to more effective and robust outcomes and avoid duplication of effort.

6.6.4.24 To support periodic review and amendment of relevant AMP elements, the SIP should assess all relevant service experience and compare this to the assumptions that underpin the AMP intervals and tasks to ensure they remain valid. Relevant service experience data should include, but is not limited to:

1. operational usage
2. occurrences and other unserviceabilities
3. maintenance findings, results of inspections, and repair information
4. condition and health monitoring data.

6.6.4.25 Where available, and relevant to the ADF CRE, service experience from other operators should also be considered.

6.6.4.26 Note that despite the separate obligations, there is a degree of commonality between the monitoring and assessments to support ongoing validity of relevant AMP elements and those required under DASR 21.A.44(c) (see Section 6.6.3). Whereas the objective of DASR 21.A.44(c) is to ensure the MTC remains compliant with the TCB, the objective of DASR M.A.302(g) is to ensure the maintenance tasks and intervals implemented through the AMP remain valid for the individual operator. Nevertheless, similar expertise, data and assessment methods are required in both cases. Therefore, the SIP systems and processes (as overseen by the SIP manager) should be able to support both sets of obligations within the scope of the aircraft structure and propulsion system. The CAMO should ensure that the SIP is cognisant of their DASR M.A.302 requirements.

6.6.4.27 **Condition and Health Monitoring.** SIP condition monitoring and health monitoring elements can also support the DASR RP requirement for certain aircraft systems or components and

Superseded

in turn contribute to ensuring the ongoing effectiveness of the AMP. Condition / health monitoring elements can be comprised of many different techniques that will vary between the system or component(s) being monitored. Examples for structures and propulsion systems may include:

1. scheduled inspection of general component condition (including through non-destructive and remote visual inspections techniques),
2. vibration monitoring
3. monitoring of parameters such as oil / fluid / gas temperatures and pressures
4. performance monitoring
5. wear debris analysis
6. oil condition monitoring
7. embedded sensors to detect structural failures or redistribution of loads.

6.6.4.28 Condition / health monitoring requirements may be promulgated through ICA, in which case the CAMO would be expected to incorporate these requirements in the AMP, or they may be implemented as an additional measure to support reliability, availability and maintainability goals.

6.6.4.29 Note that condition / health monitoring for the purposes described in this section should not be conflated with Structural Condition Monitoring (SCM) under the MTCH DASR 21.A.44(c) obligation (refer to Annex A for further information on SCM). These two concepts serve separate purposes, but are related in that data from condition / health monitoring techniques may be a subset of the source data for SCM.

Recording Operational Usage

6.6.4.30 In addition to basic aircraft record keeping and tracking life accrual, the collection of operational usage data is required to support the MTCH obligation to undertake ongoing monitoring and periodic assessment (DASR 21.A.44(c), refer Section 6.6.3).

6.6.4.31 The nature of the usage data required will vary significantly between aircraft and propulsion system types and roles. The MTCH should define the data required for supporting the DASR 21.A.44(c) obligation, including any technical requirements for the system to collect the data. These requirements should ideally be based on OEM data or advice.

6.6.4.32 The operating organisation is responsible for ensuring that the required usage data is collected through the continuing airworthiness record system (DASR M.A.305(c)).

6.6.5 Structural / System Integrity Management Plan (SIMP)

Purpose of SIMPs under DASR

6.6.5.1 SIMPs are a key document that assists the regulated community in the following two main ways:

1. SIMPs provide a consolidated reference for key structural and propulsion system information such as the relevant airworthiness design requirements and standards, certification outcomes and the definition and source for critical parts and AwLs.

Superseded

2. SIMPs document how the SIP contributes to supporting a number of MTCH and CAMO DASR obligations. From this perspective, SIMPs should be considered subordinate to the Type Continued Airworthiness Exposition (TCAE), Continuing Airworthiness Management Exposition (CAME) and AMP document. The relevant sections of the TCAE, CAME and AMP should refer down to SIMPs and the relevant sections of the SIMPs should refer to the regulation(s) the content is supporting.

6.6.5.2 SIMPs are therefore considered AMC under DASR.

SIMP Content, Structure and Management

6.6.5.3 Given the purpose of SIMPs under DASR outlined above, DASA's policy is that it will endorse all SIMPs. However, SIMPs serve a broader purpose under Defence Policy[18], therefore, not all content will be directly relevant to the DASP.

6.6.5.4 The SIMP content that requires DASA endorsement is listed in Table 1. For ease of review and management, DASA recommends that this content be contained in a dedicated section of the SIMP. All other SIMP content should be managed by the SIP manager in coordination with CASG.

6.6.5.5 DASA expects that SIMPs will be maintained by the SIP manager, and that the MTCH and CAMO will have reviewed the content listed in Table 1 that is relevant to them prior to SIMPs being submitted for DASA endorsement. Best practice is to ensure the sections of the SIMP that are relevant to either the MTCH or CAMO are clearly identified.

6.6.5.6 An indicative SIMP amendment process is shown below in Figure 2. Note that since SIMPs serves a broader purpose under Defence Policy, DASA endorsement should not be viewed as the final step, and SIMP approval should be provided by a suitable Defence representative (notionally a senior Defence engineer within the CASG System Program Office).

Table 1: SIMP Content Requiring DASA Endorsement

Content	DASR Reference	Section 6.6 Reference
A list of the key structural / propulsion system airworthiness design standards, Defence-unique airworthiness requirements (ie derived from DASDRM) and reference to the TCB	21.A.16A 21.A.16B 21.A.17A	6.6.2.1 - 6.6.2.3
The basis of sovereign type certification for the structure / propulsion system, including: • type certification approach (eg how prior recognition was leveraged) • reference to structures / propulsion system CREAs and sovereign compliance demonstration evidence • reference to certification outcomes such as relevant Military Certification Review Items and Airworthiness Issue Papers	21.A.20	6.6.2.5 - 6.6.2.11

Superseded

• description of any outstanding structures/propulsion system certification issues and the proposed resolution pathway		
Definition of structural / propulsion system critical parts Either a list of, or reference to, the authoritative source for critical parts	21.A.41	6.6.2.15 - 6.6.2.19
Definition of structural / propulsion system AwLs, and details of what algorithms, damage equations, conversion factors or other data are encompassed within the AwL definition Reference to the authoritative source for structural / propulsion system AwLs Listing of structural / propulsion system AwLs (as required)	21.A.41	6.6.2.22 - 6.6.2.31
Description of organisations involved, and the typical process followed, for investigation of structural / propulsion system failures, malfunctions, defects and other occurrences Description of the process that allows retired, damaged or defective components to be subject to detailed examination as and when required	21.A.3A(a)	6.6.3.1 - 6.6.3.10
Details of the systems and processes for ongoing monitoring and periodic structural / propulsion system integrity assessment, including: • organisational responsibilities • input data requirements and how this data is collected and validated • periodic assessment frequency and / or trigger(s) • periodic assessment methodology • expected outputs • outcomes of, and reference to, completed assessments	21.A.44(c)	6.6.3.11 - 6.6.3.26
Details of the system and processes for tracking structural / propulsion system life-limited components, including organisational responsibilities	M.A.305(d)(4)	6.6.4.1 - 6.6.4.16
Description of if and how the SIP supports the development and ongoing validity of relevant structural / propulsion system elements of the AMP	M.A.302	6.6.4.17 - 6.6.4.29

Superseded

Process for managing amendments to the SIMP, including frequency and triggers for amendments	N/A	N/A
Any other information requested by DASA specific to the aircraft type	N/A	N/A

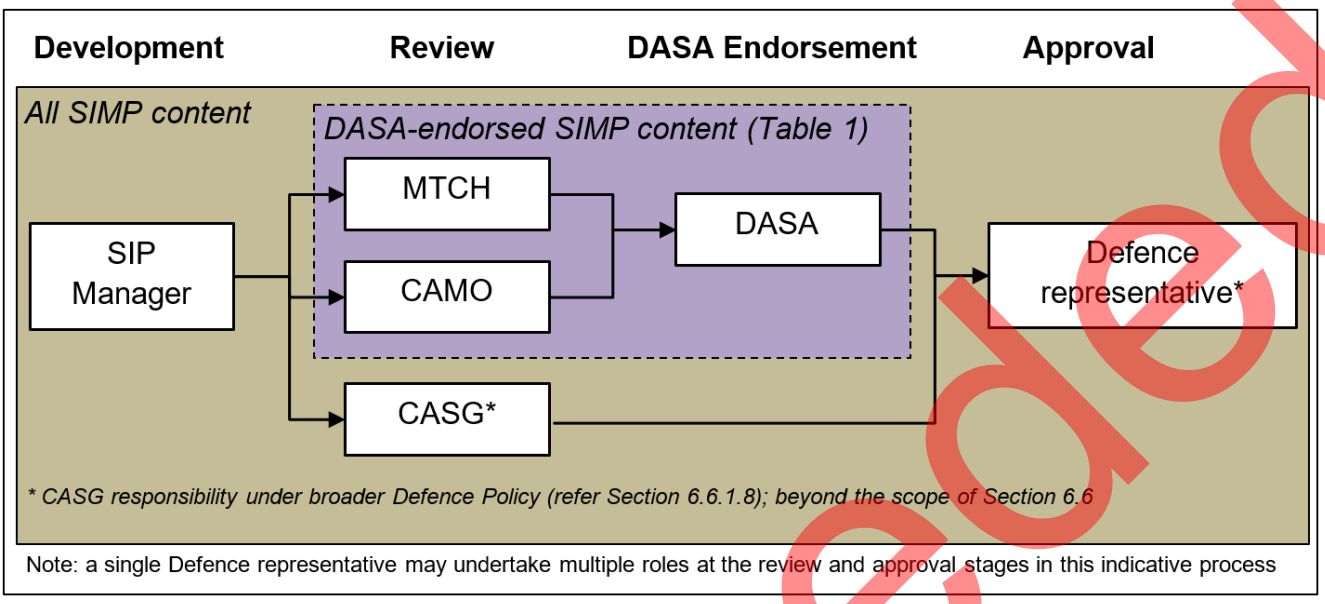


Figure 2: Indicative SIMP Amendment Process

ASIMP Volume 2 / Force Structural Maintenance Plan (FSMP)

6.6.5.7 Discussion on SIMPs until this point has been in reference to the ASIMP Volume 1 and PSIMP.

6.6.5.8 Some aircraft types also use an ASIMP Volume 2 / FSMP. These vary in scope, but typically consolidate information such as structural classifications and / or listing of critical parts, and details (including reference to substantiating and supporting data) of locations identified through analysis, test or service experience that require modification, inspection or repair. DASA supports use of an ASIMP Volume 2 / FSMP as they are a valuable document for ASIP stakeholders, however, DASA does not have any expectation that they should be maintained for every aircraft type.

6.6.5.9 In the capacity outlined above, an ASIMP Volume 2 / FSMP should simply be a consolidated reference of previously-approved design data, and therefore does not require DASA endorsement or approval.

6.6.5.10 The only exception may be where the ASIMP Volume 1 identifies the ASIMP Volume 2 / FSMP as the authoritative source for structural AwLs. This may be the case for some legacy platforms where the ASIMP Volume 2 was historically used to approve and publish AwLs (ie there is no other authoritative 'source' document(s) to refer to). In this case, the ASIMP Volume 2 / FSMP should clearly distinguish AwLs from other structural maintenance requirements. Furthermore, moving forward they should not be used as the vehicle to approve new or updated AwLs, rather they should reference the separately approved design data. In this capacity the ASIMP Volume 2 / FSMP should be treated like other manuals issued by the MTCH (DASR 21.A.57). As noted under DASR AMC 21.A.57, approval and issuing the manual may be separate to approval of the technical content (ie approval of the AwLs).

Superseded

6.6.6 SIP-Related DASR Responsibilities

6.6.6.1 The main SIP-related DASR responsibilities are consolidated by organisation in Table 2.

6.6.6.2 Whilst SIP-related DASR responsibilities are distributed across different organisations, DASA expects that each SIP will continue to be managed and led by a single organisation (ie SIP manager appointed by CASG). Organisational responsibilities are listed below so that each regulated entity understands what they are accountable for, and so SIP managers can understand how their SIP contribute to supporting various obligations under DASR.

Table 2: Consolidated SIP-Related DASR Responsibilities

DASR Responsibility	DASR Reference	Section Reference
Applicants for MTC and MSTC / Major Changes		
Develop and submit proposed TCB for DASA approval Ensure the structures / propulsion system airworthiness design requirements specified in the DASDRM are addressed in the TCB	21.A.16A 21.A.16B 21.A.17A	6.6.2.1 - 6.6.2.3
Compliance demonstration, including ensuring that CRE differences that impact structures / propulsion systems are identified and assessed when leveraging prior CAA / MAA certification	21.A.20	6.6.2.5 - 6.6.2.11
Define and identify structural / propulsion system critical parts and AwLs for the design, consistent with the TCB and the intended Defence CRE, and submit this data to DASA as part of the application	21.A.41	6.6.2.15 - 6.6.2.19 6.6.2.22 - 6.6.2.31
Military Type Certificate Holder		
Collection, investigation and analysis of failures, malfunctions, defects and other occurrences for structures and propulsion systems, including decisions regarding examination of retired, damaged or defective parts	21.A.3A(a)	6.6.3.1 - 6.6.3.10
Occurrence reporting for structures and propulsion systems	21.A.3A(b)	
Report to DASA the results of investigation and any action taken or proposed to correct manufacturing or design deficiencies that have resulted in a reportable occurrence	21.A.3A(c)	
Submit the proposed corrective action and / or required inspections to DASA for approval when an	21.A.3B(c)	

Superseded

Airworthiness Directive is required to correct an unsafe condition		
Establish and execute system and processes for ongoing monitoring & periodic assessment throughout service life	21.A.44(c)	6.6.3.11 - 6.6.3.26
Provide technical requirements to the operating organisation / CAMO regarding the systems for monitoring usage and tracking against structural and propulsion system AwLs	Supporting M.A.305(d)(4) and M.A.305(c)	6.6.4.4 6.6.4.31
Review relevant SIMP content and ensure it supports MTCH obligations Ensure the TCAE refers to the SIMP in relevant sections	Various	6.6.5
DASR M (Operating Organisation / CAMO)		
Tracking life accrual against structural and propulsion system AwLs	M.A.305(d)(4)	6.6.4.1 - 6.6.4.16
Ensure structures and propulsion system aspects of the AMP are subject to periodic review and continue to be valid in light of operating experience	M.A.302(g)	6.6.4.17 - 6.6.4.29
Collecting operational usage data as defined by the MTCH	M.A.305(c)	6.6.4.30 -6.6.4.32
Occurrence reporting for structures and propulsion systems	M.A.202	N/A
Review relevant SIMP content and ensure it supports DASR M obligations Ensure the CAME and AMP document refers to the SIMP in relevant sections	Various	6.6.5
DASR 145 (Maintenance Organisation)		
Support collection of service experience data required for ongoing monitoring and periodic assessment, and tracking life accrual against structural and propulsion system AwLs	Supporting 21.A.44(c) and M.A.305(d)(4)	6.6.3.20 6.6.4.1 - 6.6.4.11
Retain unserviceable or unsalvageable components that are the subject of an occurrence report until the investigation has determined that the component is not required to be retained for further examination	145.A.42	6.6.3.9 - 6.6.3.10

Superseded

Occurrence reporting for structures and propulsion systems	145.A.60	N/A

Superseded

6.7.1 Introduction

6.7.1.1 Defence Aviation Orders, Instructions and Publications (OIP) comprise those documents that provide direction, guidance and other information relevant to the generation, operation and sustainment of Defence aviation capabilities. Defence Aviation OIP should be distinguished from aviation-related Defence records that preserve the memory or knowledge of Defence aviation events, activities, decisions and personnel.

6.7.1.2 Whilst not all Defence Aviation OIP has an aviation safety impact, many documents have the potential to contribute to aviation safety hazards. Accordingly, the effective lifecycle management of Defence Aviation OIP can eliminate or minimise the risk associated with these hazards and thus significantly enhance the safe conduct of ADF aviation operations.

6.7.2 Defence Aviation OIP

6.7.2.1 Defence OIP comprises a broad set of documents that include Defence manuals, Service and Group-issued publications, handbooks and directives, and organisational standard operating procedures and instructions. Defence Aviation OIP comprises Defence OIP that is:

1. used during aviation materiel system design activities
2. continuing airworthiness OIP including aircraft maintenance and maintenance management OIP
3. other maintenance and maintenance management OIP for ground-based aviation-related materiel systems
4. Flight operations OIP used to operate aircraft (including flying orders and aircrew manuals)
5. used to operate ground-based aviation-related systems (such as air navigation systems and air battle management systems)
6. used to publish, support and explain aviation regulations
7. used in the logistics support of aviation materiel systems
8. used in support of aviation-related capability management
9. used in support of aviation-related information management.

6.7.2.2 Defence Aviation OIP may be produced entirely within Defence or derived from other documents; sometimes acquired from sources external to defence. In order to eliminate or minimise risk associated with aviation safety hazards, Defence Aviation OIP should undergo a process of drafting, review and amendment (Lifecycle Management Process) to ensure that the published OIP reflects the Defence Configuration, Role and Environment (CRE). Where appropriate, Defence

Superseded

Aviation OIP should also satisfy Defence standardisation requirements – e.g. standardised OIP format used for aircrew flight manuals.

What are OIP's aviation safety hazards?

6.7.2.3 Poor management of Defence Aviation OIP can create aviation safety hazards through the:

1. display of incorrect information leading to unsafe decisions or actions
2. display of correct and timely information but presented in a way that increases the likelihood that the information may be missed or misread, leading to unsafe decisions or actions
3. ongoing display of superseded information that creates inconsistencies and ambiguities.
4. failure to include information required to make good safety-related decisions and take appropriate safety-related actions
5. need for memory-based execution of safety-related decisions or actions when OIP is not available to the user when required.

6.7.2.4 Various forms of Defence Aviation OIP are used by personnel responsible for aviation-related design, operation, maintenance and continuing airworthiness management. OIP documents and communicates requirements, procedures and other information to those who need it to perform their duties. Aviation safety hazards in poorly managed OIP may directly contribute to the incorrect design, maintenance and operation of aircraft, aerodromes and air navigation services. The aim of effective OIP lifecycle management is to present accurate and complete information, presented in a manner that is unambiguous and easy to read in an operational environment.

6.7.3 Defence Aviation OIP Manual

6.7.3.1 The Defence Aviation OIP Management Manual (AVOIPMAN), provides policy, requirements and guidance with respect to the lifecycle management of Defence Aviation OIP. The AVOIPMAN is issued by Chief of Air Force, as a nominated policy owner within the Defence Administrative Policy Framework.

6.7.3.2 The requirements detailed in the AVOIPMAN should be followed by all personnel within the Defence Aviation Community including those in DASR-regulated organisations, in order to eliminate or minimise risk associated with aviation safety hazards. Whilst many of the AVOIPMAN requirements would markedly reduce the creation of aviation safety hazards, the intent of the manual is to ensure that OIP lifecycle management effectively contributes to the generation of aviation capabilities. In particular, the AVOIPMAN describes the characteristics of effective OIP lifecycle management and provides guidance on how to achieve these characteristics.

What is the relationship between the AVOIPMAN and DASR?

6.7.3.3 The AVOIPMAN requirements supplement, and are consistent with, the DASR applicable to OIP management. While most DASR focus solely on the accuracy and completeness of relevant aviation OIP, aviation OIP that cause or contribute to aviation hazards are the focus of DASR SMS. In addition to accuracy and completeness, DASR SMS also encompasses the usability / readability of aviation OIP that causes or contributes to aviation hazards.

Superseded

6.7.3.4 Under DASA's Present, Suitable, Operating and Effective (PSOE) assurance model (detailed in DASP Manual Volume 3 Section 5), the SMS of an organisation may be found to be not operating correctly if hazards related to aviation OIP are not recorded correctly. An organisation's SMS may be found to be ineffective if hazards related to aviation OIP are recorded, but related risk is not being eliminated or minimised So Far as Reasonably Practicable (SFARP). The AVOIPMAN will assist DASR approved organisations eliminate or minimise risk SFARP by providing a common set of OIP management expectations across defence groups – particularly in Capability Acquisition and Sustainment Group, who are often responsible for producing aviation OIP used by Navy, Army and Air Force.

6.7.3.5 The AVOIPMAN specifies two key management roles, namely the Issuing Authority and the OIP Sponsor. The Issuing Authority has prime responsibility for managing a specific OIP Type[1]. The OIP Sponsor has prime responsibility for managing a specific OIP document (content and format), within the requirements established by the Issuing Authority for the relevant OIP Type.

6.7.3.6 No DASR mentions or explicitly regulates OIP Issuing Authorities. The flight operations DASR mention and regulate the OIP Sponsor in ways that are consistent with the AVOIPMAN requirements. Initial and Continuing Airworthiness DASR do not mention or regulate the OIP Sponsor but do regulate other people and organisations in ways that support the Issuing Authority and OIP Sponsor. In particular, Initial and Continuing Airworthiness DASR place requirements on design organisations, maintenance organisations and Continuing Airworthiness Management Organisations with respect to OIP management. So collectively, the DASR contribute to effective OIP management of aviation safety elements of the broad AVOIPMAN requirements.

6.7.3.7 Conversely, the AVOIPMAN requirements support the discharge of DASR obligations. The AVOIPMAN make clear that the process to approve and release the content of new OIP, or amended OIP must include any relevant approvals mandated within Defence regulatory frameworks. For Defence Aviation OIP, the main regulatory framework is that provided within the DASP. Whilst the content of most OIP types are not subject to DASR approvals, such approvals apply to much OIP relevant to the design, maintenance and operation of aircraft, aerodromes and air navigation systems. Other regulatory frameworks also apply, such as the Explosive Safety Regulatory Framework and the requirements of the Defence Landworthiness Management System relevant to some ground-based systems and equipment within the aviation domain.

6.7.3.8 Both the AVOIPMAN and DASR provide requirements aimed at ensuring effective OIP lifecycle management. The assurance of Defence Aviation OIP may occur as part of the range of activities that include system and desktop reviews and formal onsite auditing.

6.7.4 Conclusion

6.7.4.1 The ineffective lifecycle management of Defence Aviation OIP creates aviation safety hazards that threaten the desired outcomes of the Defence Aviation Safety Program. Compliance with the DASR requirements relevant to OIP management markedly reduces the likelihood that the hazards will eventuate. Regulated organisations should also remain cognisant of the broader AVOIPMAN requirements to ensure safe, capability focused, outcomes.

Superseded

6.8.1 Data Integrity

Introduction

6.8.1.1 In the context of Defence aviation, data is defined in many ways. The Australian Defence Glossary states it is the raw material used to represent information or from which information can be derived. Capability Acquisition and Sustainment Group policy blurs the distinction between 'data' and 'information', defining 'technical data' as recorded information, regardless of the form or method of the recording, of a scientific or technical nature. DASR 145 explains that 'maintenance data' comprises requirements, procedures, operational directive or information and instructions and standards.

6.8.1.2 For the purposes of the DASP, data comprises all data and information used by aircraft design engineers, aircraft operators, aircraft maintainers, continuing airworthiness management staff, air navigation service providers, aerodrome operators, aviation logistics support staff and aviation training organisations. Data can either be acquired from sources external to Defence and used as-is, acquired externally and processed within Defence to create modified data, or created, collected and processed within Defence. Annex A provides a useful taxonomy of data used within the DASP.

Data as an aviation safety hazard

6.8.1.3 Data used in both aircraft and ground applications may create substantial aviation safety risks. Data that is insufficient, corrupt or erroneous may lead to users being presented with inaccurate information, the correct information not being available at the required time or people being presented with incomplete information. Accordingly, data represents an aviation safety hazard. The resultant aviation safety risks vary considerably in both their likelihoods and consequences. Some undetected data errors, such as incorrect throwaway lives, create direct safety consequences. Others, such as incorrect records of maintainer authorisations, may simply reduce safety margins. Further, the extent to which poor data can be subject to effective downstream risk controls, before adverse consequences are realised, also markedly varies. For some data types, ample opportunity exists to establish downstream risk controls. For other types, little can be credibly done to identify anything but the grossest errors. For example, the inaccurate calculation of a take-off or landing speed by aircrew provides no opportunity for the errors to be independently detected. In contrast, errors in published maintenance requirements provide the opportunity for errors to be independently detected by maintainers.

What is data intergity?

6.8.1.4 The term used to characterise the 'goodness' of data is data integrity. Although focused on aeronautical data, RTCA DO-200B Standards for Processing Aeronautical Data, provides the most comprehensive list of data integrity characteristics that are equally relevant to all data types. Annex B lists and defines these data characteristics. Ideally, all data used in Defence should exhibit values of these data characteristics tailored to the intended data use and the risks posed by their inadequate integrity. Nevertheless, setting exacting requirements for all data characteristics would come at a cost that may not be reasonably practicable for data types that do not generate higher aviation safety risks.

Superseded

What is the data chain?

6.8.1.5 Defence can both acquire and create data of poor integrity. Initially high integrity data can be processed and presented to users in ways that corrupt its integrity. To best understand how data may be corrupted, DO-200B discusses the data processing chain that conceptually applies to all the data categories detailed in Annex A. Any data chain comprises a mix of five types of functional links, namely Origination, Transmission, Preparation, Application Integration, and End-Use of data. A chain can be of varying length given a link type can occur more than once. Within any chain, the links are typically performed by different organisations.

6.8.1.6 DO-200B also describes how the Transmission, Preparation and Application Integration functional links can be further divided into the following six processing phases:

1. **Receive Phase.** The Receive Phase involves the reception of the original data from its source. The data originator may either be a Defence organisation or a source external to Defence.

2. **Assemble Phase.** The Assemble Phase involves the collection and collation of data from one or more data sources.

3. **Translate Phase.** The Translate Phase involves changing, where necessary, how information is to be displayed to the eventual consumer of the data.

4. **Select Phase.** The Select Phase involves selecting specific data elements from the collection of data produced by the assemble phase.

5. **Format Phase.** The Format Phase involves converting the selected data subset into a format that is acceptable to the next functional link in the chain.

6. **Distribute Phase.** The Distribute Phase involves the delivery of the formatted data set to its users. Examples of delivery media are magnetic or optical media, solid state devices, direct computer-to-computer links or wireless data communications.

How do DASR regulate data integrity?

6.8.1.7 The DASR do not provide a discrete section on the management of data to assure data integrity. Spread throughout the Initial Airworthiness, Continuing Airworthiness, Flight Operations, Air Navigation Service Providers and Aerodromes regulations are what could be termed 'entry control' requirements for people operating in the data chain, as well as the eventual end-users of the data. These regulations do not place requirements on the creation of data, but on those using the data. The requirements are often couched in different terms, with the intent that before data is used it is assessed to determine whether it is accurate, applicable, approved, current and credible.

6.8.1.8 DASR ANSP does not provide entry control requirements for the use of data. It requires that an Air Navigation Service Provider that provides an Aeronautical Information Service must provide documents that detail Aeronautical Information product development and Aeronautical Information delivery procedures. Such procedures would aim to develop and provide Aeronautical Information of adequate integrity. At this time, DASR does not require organisations processing aeronautical data to be DO-200B compliant, but in practice DASA has issued a DO-200B based Letter of Acceptance to AIS-AF for its major aeronautical data product.

Ensuring data integrity in practice

Superseded

6.8.1.9 Data integrity should be ensured in two scenarios. In the first scenario, pre-existing data is used to take a decision or perform an action. In the second scenario, data is created or processed for use by others. These scenarios will be discussed in turn.

6.8.1.10 When using pre-existing data, to take a decision or perform an action, one should:

1. understand, where practicable, the data quality requirements for each of the relevant data characteristics outlined in Annex B
2. only use data received from a reputable source such as from a currently accredited data supplier
3. only use current data
4. look for any indications that the data may have corrupted in transit from its source or supplier, either intentionally or unintentionally
5. confirm the data has the required resolution for its intended purpose
6. confirm the data is complete given its intended purpose
7. ensure the data format is unlikely to be misread or misinterpreted with, where applicable, clear units of measurement
8. rectify any identified problems with data integrity.

6.8.1.11 When creating or processing data for use by others, one should:

1. understand, where practicable, what data quality requirements are needed for each of the relevant data characteristics outlined in Annex B
2. ensure any created data is not corrupted during data processing activities
3. ensure the processed data has the required resolution for its intended purpose
4. ensure the processed data is complete given its intended purpose
5. ensure the processed data is generated in the required format, either human readable or digital
6. provide the processed data in a format that is unlikely to be misread or misinterpreted, with, where applicable clear units of measurement
7. ensure that any software tools used during any data processing stage are subject to the tool qualification process discussed below in paragraph 6.8.15.
8. rectify any identified problems with data integrity.

Required rigour

6.8.1.12 The rigour that should be applied in performing these activities depends on the proposed use of the data and its criticality. As criticality increases, the rigour applied in questioning the integrity of data by personnel processing and using the data should become increasingly robust. Of greatest concern should be data that once created and used downstream provides little opportunity for people to verify its integrity, apart from the potential for gross error checks.

Superseded

6.8.1.13 Accordingly, the effort that should be applied in asking and answering these questions needs to be commensurate with the risk that poor data integrity poses to aviation safety. These risks depend on a range of variables relevant to a specific data type used in a specific scenario. Nevertheless, one can characterise data as follows:

1. **Category 1.** Aviation data in which poor integrity creates credible higher aviation safety risks. Little or no opportunity exists for effective downstream risk treatments.
2. **Category 2.** Aviation data in which poor integrity creates credible higher aviation safety risks. Opportunity exists for effective downstream risk treatments.
3. **Category 3.** Aviation data in which poor integrity creates credible lower aviation safety risks. Little or no opportunity exists for effective downstream risk treatments.
4. **Category 4.** Aviation data in which poor integrity creates credible lower aviation safety risks. Opportunity exists for effective downstream risk treatments.

6.8.1.14 These categories require decreasing degrees of safety assurance with Category 1 deserving the most attention. Given that any data type may contain data that falls within multiple categories, Annex A also provides a subjective assessment of the most severe credible category for each listed data type.

Software Tool qualification

6.8.1.15 Within the data chain explained in paragraph 6.8.6, designers and operators use software tools to create and process data. Depending on their function, these tools may require qualification before use to ensure they do not generate low integrity data. A historic problem has been well-meaning Defence members either writing or buying software data-processing applications without appropriate integrity, or using extant tools, sometimes written by their predecessors, of uncertain integrity.

6.8.1.16 Qualification of a software tool is required when engineering or other processes are eliminated, reduced or automated by the use of a software tool without its output being verified. The purpose of the tool qualification is to ensure that the tool provides confidence at least equivalent to that of the processes eliminated, reduced or automated.

6.8.1.17 Annex C provides guidance on software tool qualification. Personnel creating or amending software tools should understand the defined process and be informed by the documented guidance.

Risk management

6.8.1.18 Where identified problems with data integrity cannot be effectively rectified, personnel should diligently apply the seven-step Safety Risk Management process described at AC 003/2018 Risk Management in the Defence Aviation Safety Program.

6.8.1.19 In applying the seven-step process to data hazards, organisations should consider:

1. their ability to engage with the supplier of the data to confirm its integrity before use
2. introducing gross error checks at various stages of the data processing
3. performing sensitivity analyses on the data to confirm the extent that inaccurate data would affect the decision or the performance of the action

Superseded

4. using, the range of verification and validation techniques detailed in DO-200B Appendix C, such as semantic consistency, digital error detection and sampling, to help minimise the risk

5. Attaining multiple sources of truly independent data.

6.8.2 Conclusion

6.8.2.1 Data plays an important role in aviation safety. Poor data will lead to aviation safety hazards and may not provide any or little opportunity to the user for risk treatment. Designer and operators use software tools to create and process data. When a software tool eliminates, reduces or automates an engineering process and its output is not verified, software tool qualification is required as per DO-200B. The seven-step Safety Risk Management process should be applied when the user identifies a problem with data integrity and cannot effectively rectify the problem. Effective data processing may reduce not only the likelihood but also the consequences that poor integrity data will generate towards aviation safety risks. The onus is on all personnel in the data chain, as well as the data's end-user, to question data integrity and eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP).

Annexes

(a) Aviation Data

(b) Data Characteristics as per DO-200B

(c) Tool Qualification as per DO-200B

Superseded

Annexes

6.8.1 Data Integrity

Introduction

6.8.1.1 In the context of Defence aviation, data is defined in many ways. The Australian Defence Glossary states it is the raw material used to represent information or from which information can be derived. Capability Acquisition and Sustainment Group policy blurs the distinction between 'data' and 'information', defining 'technical data' as recorded information, regardless of the form or method of the recording, of a scientific or technical nature. DASR 145 explains that 'maintenance data' comprises requirements, procedures, operational directive or information and instructions and standards.

6.8.1.2 For the purposes of the DASP, data comprises all data and information used by aircraft design engineers, aircraft operators, aircraft maintainers, continuing airworthiness management staff, air navigation service providers, aerodrome operators, aviation logistics support staff and aviation training organisations. Data can either be acquired from sources external to Defence and used as-is, acquired externally and processed within Defence to create modified data, or created, collected and processed within Defence. Annex A provides a useful taxonomy of data used within the DASP.

Data as an aviation safety hazard

6.8.1.3 Data used in both aircraft and ground applications may create substantial aviation safety risks. Data that is insufficient, corrupt or erroneous may lead to users being presented with inaccurate information, the correct information not being available at the required time or people being presented with incomplete information. Accordingly, data represents an aviation safety hazard. The resultant aviation safety risks vary considerably in both their likelihoods and consequences. Some undetected data errors, such as incorrect throwaway lives, create direct safety consequences. Others, such as incorrect records of maintainer authorisations, may simply reduce safety margins. Further, the extent to which poor data can be subject to effective downstream risk controls, before adverse consequences are realised, also markedly varies. For some data types, ample opportunity exists to establish downstream risk controls. For other types, little can be credibly done to identify anything but the grossest errors. For example, the inaccurate calculation of a take-off or landing speed by aircrew provides no opportunity for the errors to be independently detected. In contrast, errors in published maintenance requirements provide the opportunity for errors to be independently detected by maintainers.

What is data intergity?

6.8.1.4 The term used to characterise the 'goodness' of data is data integrity. Although focused on aeronautical data, RTCA DO-200B Standards for Processing Aeronautical Data, provides the most comprehensive list of data integrity characteristics that are equally relevant to all data types. Annex B lists and defines these data characteristics. Ideally, all data used in Defence should exhibit values of these data characteristics tailored to the intended data use and the risks posed by their inadequate integrity. Nevertheless, setting exacting requirements for all data characteristics would come at a cost that may not be reasonably practicable for data types that do not generate higher aviation safety risks.

What is the data chain?

Superseded

6.8.1.5 Defence can both acquire and create data of poor integrity. Initially high integrity data can be processed and presented to users in ways that corrupt its integrity. To best understand how data may be corrupted, DO-200B discusses the data processing chain that conceptually applies to all the data categories detailed in Annex A. Any data chain comprises a mix of five types of functional links, namely Origination, Transmission, Preparation, Application Integration, and End-Use of data. A chain can be of varying length given a link type can occur more than once. Within any chain, the links are typically performed by different organisations.

6.8.1.6 DO-200B also describes how the Transmission, Preparation and Application Integration functional links can be further divided into the following six processing phases:

1. **Receive Phase.** The Receive Phase involves the reception of the original data from its source. The data originator may either be a Defence organisation or a source external to Defence.

2. **Assemble Phase.** The Assemble Phase involves the collection and collation of data from one or more data sources.

3. **Translate Phase.** The Translate Phase involves changing, where necessary, how information is to be displayed to the eventual consumer of the data.

4. **Select Phase.** The Select Phase involves selecting specific data elements from the collection of data produced by the assemble phase.

5. **Format Phase.** The Format Phase involves converting the selected data subset into a format that is acceptable to the next functional link in the chain.

6. **Distribute Phase.** The Distribute Phase involves the delivery of the formatted data set to its users. Examples of delivery media are magnetic or optical media, solid state devices, direct computer-to-computer links or wireless data communications.

How do DASR regulate data integrity?

6.8.1.7 The DASR do not provide a discrete section on the management of data to assure data integrity. Spread throughout the Initial Airworthiness, Continuing Airworthiness, Flight Operations, Air Navigation Service Providers and Aerodromes regulations are what could be termed 'entry control' requirements for people operating in the data chain, as well as the eventual end-users of the data. These regulations do not place requirements on the creation of data, but on those using the data. The requirements are often couched in different terms, with the intent that before data is used it is assessed to determine whether it is accurate, applicable, approved, current and credible.

6.8.1.8 DASR ANSP does not provide entry control requirements for the use of data. It requires that an Air Navigation Service Provider that provides an Aeronautical Information Service must provide documents that detail Aeronautical Information product development and Aeronautical Information delivery procedures. Such procedures would aim to develop and provide Aeronautical Information of adequate integrity. At this time, DASR does not require organisations processing aeronautical data to be DO-200B compliant, but in practice DASA has issued a DO-200B based Letter of Acceptance to AIS-AF for its major aeronautical data product.

Ensuring data integrity in practice

6.8.1.9 Data integrity should be ensured in two scenarios. In the first scenario, pre-existing data is used to take a decision or perform an action. In the second scenario, data is created or processed for use by others. These scenarios will be discussed in turn.

Superseded

6.8.1.10 When using pre-existing data, to take a decision or perform an action, one should:

1. understand, where practicable, the data quality requirements for each of the relevant data characteristics outlined in Annex B
2. only use data received from a reputable source such as from a currently accredited data supplier
3. only use current data
4. look for any indications that the data may have corrupted in transit from its source or supplier, either intentionally or unintentionally
5. confirm the data has the required resolution for its intended purpose
6. confirm the data is complete given its intended purpose
7. ensure the data format is unlikely to be misread or misinterpreted with, where applicable, clear units of measurement
8. rectify any identified problems with data integrity.

6.8.1.11 When creating or processing data for use by others, one should:

1. understand, where practicable, what data quality requirements are needed for each of the relevant data characteristics outlined in Annex B
2. ensure any created data is not corrupted during data processing activities
3. ensure the processed data has the required resolution for its intended purpose
4. ensure the processed data is complete given its intended purpose
5. ensure the processed data is generated in the required format, either human readable or digital
6. provide the processed data in a format that is unlikely to be misread or misinterpreted, with, where applicable clear units of measurement
7. ensure that any software tools used during any data processing stage are subject to the tool qualification process discussed below in paragraph 6.8.15.
8. rectify any identified problems with data integrity.

Required rigour

6.8.1.12 The rigour that should be applied in performing these activities depends on the proposed use of the data and its criticality. As criticality increases, the rigour applied in questioning the integrity of data by personnel processing and using the data should become increasingly robust. Of greatest concern should be data that once created and used downstream provides little opportunity for people to verify its integrity, apart from the potential for gross error checks.

6.8.1.13 Accordingly, the effort that should be applied in asking and answering these questions needs to be commensurate with the risk that poor data integrity poses to aviation safety. These risks depend on a range of variables relevant to a specific data type used in a specific scenario. Nevertheless, one can characterise data as follows:

Superseded

1. **Category 1.** Aviation data in which poor integrity creates credible higher aviation safety risks. Little or no opportunity exists for effective downstream risk treatments.

2. **Category 2.** Aviation data in which poor integrity creates credible higher aviation safety risks. Opportunity exists for effective downstream risk treatments.

3. **Category 3.** Aviation data in which poor integrity creates credible lower aviation safety risks. Little or no opportunity exists for effective downstream risk treatments.

4. **Category 4.** Aviation data in which poor integrity creates credible lower aviation safety risks. Opportunity exists for effective downstream risk treatments.

6.8.1.14 These categories require decreasing degrees of safety assurance with Category 1 deserving the most attention. Given that any data type may contain data that falls within multiple categories, Annex A also provides a subjective assessment of the most severe credible category for each listed data type.

Software Tool qualification

6.8.1.15 Within the data chain explained in paragraph 6.8.6, designers and operators use software tools to create and process data. Depending on their function, these tools may require qualification before use to ensure they do not generate low integrity data. A historic problem has been well-meaning Defence members either writing or buying software data-processing applications without appropriate integrity, or using extant tools, sometimes written by their predecessors, of uncertain integrity.

6.8.1.16 Qualification of a software tool is required when engineering or other processes are eliminated, reduced or automated by the use of a software tool without its output being verified. The purpose of the tool qualification is to ensure that the tool provides confidence at least equivalent to that of the processes eliminated, reduced or automated.

6.8.1.17 Annex C provides guidance on software tool qualification. Personnel creating or amending software tools should understand the defined process and be informed by the documented guidance.

Risk management

6.8.1.18 Where identified problems with data integrity cannot be effectively rectified, personnel should diligently apply the seven-step Safety Risk Management process described at AC 003/2018 Risk Management in the Defence Aviation Safety Program.

6.8.1.19 In applying the seven-step process to data hazards, organisations should consider:

1. their ability to engage with the supplier of the data to confirm its integrity before use

2. introducing gross error checks at various stages of the data processing

3. performing sensitivity analyses on the data to confirm the extent that inaccurate data would affect the decision or the performance of the action

4. using, the range of verification and validation techniques detailed in DO-200B Appendix C, such as semantic consistency, digital error detection and sampling, to help minimise the risk

5. Attaining multiple sources of truly independent data.

Superseded

6.8.2 Conclusion

6.8.2.1 Data plays an important role in aviation safety. Poor data will lead to aviation safety hazards and may not provide any or little opportunity to the user for risk treatment. Designer and operators use software tools to create and process data. When a software tool eliminates, reduces or automates an engineering process and its output is not verified, software tool qualification is required as per DO-200B. The seven-step Safety Risk Management process should be applied when the user identifies a problem with data integrity and cannot effectively rectify the problem. Effective data processing may reduce not only the likelihood but also the consequences that poor integrity data will generate towards aviation safety risks. The onus is on all personnel in the data chain, as well as the data's end-user, to question data integrity and eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP).

Annexes

(a) Aviation Data

(b) Data Characteristics as per DO-200B

(c) Tool Qualification as per DO-200B

Superseded

Annex A - Aviation Data

Aviation Data

The table below summarises the type of aviation data relevant to the DASP, categorised by their intended application. The category assessments are subjective, and intended as a starting point only. Before application, they need to be critically re-assessed, taking into account the local context.

Application	Data	Processed or displayed by	Most credible severe data category
Initial airworthiness	Data used to inform the design of, and changes to, aircraft configurations	Designer modelling/ calculation tools eg Electrical Loads Analysis	Category 2
	Data used to decide whether aircraft designs are compliant with type certification requirements		Category 1
	Data used to create or change instructions for continuing airworthiness	spreadsheets and databases	Category 2
	Data used to create or change aircraft operating limits		Category 2
	Data used to create or change aircraft flight manual technical procedures		Category 1
	Data used to inform and record engineer authorisations	Spreadsheets, Emerald	Category 4
	Data recording aircraft type design		Category 4

Superseded

	Data recording aircraft type certification basis outcomes	TCB management databases	Category 3
	Technical Standards and specifications used for design purposes	Specification/standards spreadsheets and databases	Category 2
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 4
Continuing airworthiness	Data used to create or change aircraft maintenance procedures, intervals and limitations	Hardcopy and electronic management systems	Category 2
	Fleet planning data	Fleet planning applications	Category 4
	Data used to manage aircraft configurations	Computer aided maintenance management systems	Category 2
	Data used to inform and record maintainer licenses and approvals	Computer aided maintenance management systems, spreadsheets	Category 4
	Data used to provide 'Authority to fit'	ATF applications	Category 1
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 3
Flight operations	Mission planning data	Mission planning applications	Category 1
	Data used to operate aircraft	Hardcopy, Electronic flight bags, document management systems	Category 1

Superseded

	Aircraft Take-Off and Landing Data (TOLD)	TOLD applications	Category 1
	Data used to calculate aircraft performance	Eg power settings, flight – limiting masses, distances, times and/or speeds	Category 1
	Weight and balance data	Weight and balance management applications	Category 1
	Data used to inform and record aircrew training, competence, currency, categorisation and experience	Aircrew categorisation/ experience management applications (eg PEX)	Category 4
	Hazard/risk data	ASOR data, hazard logs/risk management spreadsheets and databases	Category 3
	Flight data recorder/cockpit data recorder data	Data in FDR/CVR and extracted data	Category 4
Aerodromes	Data used to inform the design of, and changes to, aerodrome configurations	Designer modelling/ calculation tools	Category 3
	Data used to create or change aerodrome operating limitations		Category 2
	Data used to create or change aerodrome operating procedures		Category 2
	Data recording aerodrome certification outcomes	management databases	Category 4

Superseded

	Technical Standards and specifications used for design purposes	Specification/standards spreadsheets and databases	Category 4
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 4
	Data used to create or change aerodrome maintenance procedures	Hardcopy and electronic management systems	Category 4
	Data used to manage aerodrome configurations	Computer aided maintenance management systems	Category 4
	Data used to inform and record aerodrome maintainer licenses and approvals	Computer aided maintenance management systems, spreadsheets	Category 4
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 4
	Data used to inform and record aerodrome staff training, competence, currency, categorisation and experience	Categorisation/experience management applications	Category 4
ANSP	Data used to inform the design of, and changes to, ANS	Designer modelling/ calculation tools	Category 3
	Data used to create or change ANS operating limitations		Category 2

Superseded

	Data used to create or change ANS operating procedures		Category 2
	Technical Standards and specifications used for design purposes	Specification/standards spreadsheets and databases	Category 4
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 4
	Data used to create or change ANS maintenance procedures	Hardcopy and electronic management systems	Category 4
	Data used to manage ANS configurations	Computer aided maintenance management systems	Category 4
	Data used to inform and record ANS maintainer licenses and approvals	Computer aided maintenance management systems, spreadsheets	Category 4
	Hazard/risk data	Hazard Logs/Risk management spreadsheets and databases	Category 4
	Data used to inform and record ANS staff training, competence, currency, categorisation and experience	Categorisation/experience management applications	Category 4
Safety assurance	Safety assurance data	DASA SIS	Category 4
Logistics	Logistics data		Category 4
Training	Training data		Category 4

Superseded

Accuracy

The degree of conformance between the estimated or measured value and its true value.

Assurance Level

The degree of confidence in the process to provide valid/uncorrupted data. This can be categorized into three levels: 1, 2, and 3; with 1 being the highest degree of confidence.

Completeness

The degree of confidence that all of the data needed to support the intended use is provided.

Data Quality

A degree or level of confidence that the data provided meets the requirements of the user. These requirements include levels of accuracy, resolution, assurance level, traceability, timeliness, completeness, and format.

Format (as a structure)

A structure of data elements, records and files arranged to meet standards, specifications or Data Quality Requirements.

Resolution

A number of units or digits to which a measured or calculated value is expressed and used. Resolution only applies to data derived from measured values.

Timeliness

The degree of confidence that the data is applicable to the period of its intended use.

Traceability

The ability of a system or data product to provide a record of the changes made to that product and thereby enables an audit trail to be followed from the end-user to the data originator.

Superseded

Tool Qualification as per DO-200B

(a) Software tools can be used to eliminate, reduce or automate data processing activities. Tool qualification is the process by which assurance is achieved that any tools employed will neither introduce errors into the data nor fail to detect an error.

Preferred ADF standards

(b) Section 2.4.5 of RTCA DO-200B Standards for Processing Aeronautical Data is the preferred starting point for software tool qualification, given it calls out other Defence-recognised standards when appropriate. Although DO-200B discusses only Aeronautical Data, its data-focused tool qualification process applies to all form of aviation-related data.

New and existing tools

(c) All new software tools intended for use should be subjected to the process in Section 2.4.5 of DO-200B. The modification of an existing tools, shall be reviewed to determine whether the tool is required to undergo qualification; where a decision is made that qualification is not required, justification for that shall be provided.

Is tool qualification needed?

(d) Section 2.4.5 begins by explaining how to determine whether a specific software tool requires qualification and, if so, how to determine the Tool Qualification Level. Figure 2-1 provides the flowchart detailing the series of questions that must be asked to determine the need for qualification, and if so, the type of qualification. Tools requiring qualification should be qualified as either an 'error detection tool' or as a 'data processing tool'.

Determining the tool qualification level

(e) When tool qualification is needed, section 2.4.5 explains how to determine the relevant Tool Qualification Level (TQL). The required TQL varies depending on whether the tool is 'error detecting' or 'data processing' as well its appropriate Data Process Assurance Level (DPAL). Appendix C to DO-200B explain how to determine the DPAL through a preliminary system safety assessment that considers credible failure modes and their associate consequences. The consequences of failure or partial performance of the process being replaced determine the DPAL required of the tool.

(f) The process for determining the DPAL is similar to that used to determine software Design Assurance Levels (DAL) within RTCA DO-178C Software Considerations in Airborne Systems and Equipment Certification. Indeed, Table C-1 in DO-200B Appendix C shows the relationship between DPALs and DALs.

(g) Having determined the DPAL, Table 2-1 of DO-200B is used to determine the required TQL. Note that tools with a DPAL3 do not require qualification given that the preliminary safety assessment has determined that the data on which the tool would be used has no safety effect.

Qualifying tools

Superseded

(h) For those tools to be qualified, DO-200B requires use of the process in RTCA DO-330 Software Tool Qualification Considerations. However, this latter standard cannot be used in isolation, with DO-200B Appendix D providing extensive guidance on how to adapt DO-33O for software tools used in the processing of Aeronautical Data. In particular Tables D-1 through D-10 in Appendix D should be applied given they modify Tables T-0 through T-10 in DO-330.

Pre-existing tools that have not been previously qualified

(i) Whether or not a pre-existing tool requires qualification as described in this section depends on its assessed DPAL. Accordingly, the relevant DPAL should be determined as described in paragraph 5.

(j) Tools with an assessed DPAL1 require qualification in accordance with the requirements of DO-330.

(k) Whether or not pre-existing unqualified tools with an assessed DPAL2 require qualification is a risk management judgement to be made by the organisations using the tools. The system safety assessment informing the DPAL2 classification provides the appropriate starting point. An argument may be defensibly made that qualification of DPAL2 tools is unnecessary if they have a history of successful use that provides confidence in their design. In forming a view about tool history, organisations should consider whether evidence exists that:

1. the tool's functional requirements have been defined and verified through, for example, a functional flow block diagram
2. configuration management has been applied throughout the tool lifecycle
3. the effects of configuration changes have been analysed to determine their effect on tool operation, particularly with respect to safety-related functions
4. the tool is stable and mature
5. problem reporting during tool's service history provides assurance that data is available and that in-service problems were reported and recorded, and are retrievable
6. whether the tool has been 'qualified' by any process different to that described in this section
7. the intended tool usage (considering intended CRE) is relevant to the tool service history.

(l) The decision whether to qualify the tool becomes more difficult if information is not available to answer some or all of these questions, or the answers do not increase confidence in the tool's integrity. Organisations need to make a defensible decision based on engagement with stakeholders whose personnel's safety is affected by the use of the tool. Importantly, the decision whether or not to qualify the tool should also consider the availability of other risk treatments that justify not qualifying the tool. Such treatments may reduce the likelihood that the continued use of an unqualified tool will adversely affect aviation safety or may reduce the safety consequences where risks are realised.

Engaging with DASA

(m) Where tool qualification occurs as part of an organisation seeking approval from DASA as a Data Services provider, DASA may seek explanation from the organisations on how the tools

Superseded

were qualified. What processes were involved in the tool qualification process? For all other circumstances, organisations are not required to engage DASA. Nevertheless, organisations may seek DASA advice, at any time, on tool qualification.

Superseded

6.9. Cybersecurity in Aviation*

6.9.1 Introduction

6.9.1.1 Hazards to Defence aircraft may include threats from Cyber security. Command retains the responsibility for ensuring the safety of aircraft occupants, other aircraft, people and facilities on the ground. As such, Cyber hazards to Aviation Safety must be eliminated or otherwise minimised So Far As Reasonably Practicable (SFARP).

6.9.2 Purpose

6.9.2.1 This chapter guides Defence's aircraft acquisition organisations and Military Air Operators (MAOs) through the aviation safety requirements and recommended practices for treating Cyber hazards to aviation safety.

Superseded

Superseded

6.10.1 Introduction

Purpose

6.10.1.1 The purpose of the Aircraft Crash Protection (CP) policy is to assure that all Defence type certificated crewed aircraft are operated in a manner which eliminates or otherwise minimises the CP risks to personnel So Far as is Reasonably Practicable (SFARP). This chapter provides guidance to help understand how CP risk is identified, and then managed within an SMS, with guidance to help contextualise and establish reasonable knowledge.

Background

6.10.1.2 The Authority has defined the Contemporary Crash Protection Design Requirements (CCPDR) as the most demanding of requirements between the FAR/CSs for civil CCPDR, and relevant military standards for CCPDR. Ideally, Defence aircraft and contracted aircraft which carry Defence personnel should meet CCPDR as prescribed within the Defence Aviation Safety Design Requirements Manual (DASDRM). However, it is not always feasible to select the most CCPDR compliant platform because acquisition/contracting decisions are based on a much wider range of considerations.

6.10.1.3 In the event that an aircraft is unable to meet the contemporary standards for crash protection, the identified deficiencies will likely be captured within an MCRI, and where applicable, an associated AwIP that details the risk management mitigations. This AwIP, and the system's risk register then provide the basis for review and monitoring of the associated risks as a result of a survivable crash occurring.

6.10.1.4 As required by the WHS Act 2011, and implemented through DASR SMS, the MAO must maintain a system to eliminate or otherwise minimise risk So Far As is Reasonably Practicable (SFARP) to personnel resulting from a survivable crash.

6.10.1.5 Historically, crash protection within the ADF has been regulated in the Authority Rules for Operations (through ARO.40), and before that in a Defence Aviation Authority Directive (DAAD 002/16). It was determined in 2023 that regulating CP through specific obligations on the MAO no longer provided value given the context differences between the contemporary aviation safety environment and that which existed when the CP policy was first published. This change in approach allows MAOs to make risk management decisions without the undue influence of artificial priorities inferred from the existence of specific CP regulations.

6.10.1.6 Large parts of the guidance contained within the regulation did however remain valuable, assisting for a common understanding of the elements of CP for assessment. The CP guidance has transferred here, to DASPMAN Volume 3, to capture the corporate knowledge whilst allowing for greater flexibility in the management of crash protection risk.

Superseded

6.10.2 Periodic review of risk assessments

6.10.2.1 Review of Crash Protection is treated like all other risks to health and safety, utilising a risk based approach. Aircraft which represent a high risk, or where the level of risk is not well understood, should be subject to more frequent monitoring and review. Conversely for aircraft which afford a high level of CP or in which there is a lower risk of a survivable crash occurring, less frequent assessment may be more appropriate.

6.10.2.2 The DASA prescribed CCPDR will continue to evolve over time as better standards and practices are identified, this may result in supplementation to an aircraft's certification basis. In-service management is essential to ensure that CP risks are continually assessed and treated by platform. When an aircraft type fully meets the CCPDR, the MTCH and MAO should ensure that CP risks are periodically re-evaluated in service as part of the regular review of control measures under as required under DASR SMS. Where an aircraft does not meet the CCPDR, it is important that the risk is managed under the current provisions in the DASR, being TCB tailoring and an Airworthiness issue paper and/or safety management system. Furthermore, aircraft Configuration, Role and Environment (CRE) can change due to a variety of factors, which may in turn result in a change of the CP risk (and other). Hence, risk treatments should be routinely reviewed to ensure their currency dependent on severity of risk.

6.10.3 Principles of Crashworthiness

6.10.3.1 To optimise occupant protection, a systems approach to CP is necessary, encompassing the following key initial airworthiness and flight operations CP principles. The key to an optimised CP system for a particular aircraft is balance between the principles such that any one factor is not significantly degraded.

Initial airworthiness CP principles

6.10.3.2 **Aircraft crash resistance.** The ability of the aircraft structure to provide a protective shell for occupants in the event of a survivable crash is a key factor for occupant survival. The structure and equipment should be designed to allow deformation in a controlled, predictable manner so that forces imposed upon the occupants will be tolerable while still maintaining a protective shell. This aspect also relates to the restraint of concentrated (or high) mass items, to prevent parts of the aircraft becoming projectiles within the cabin during a crash creating crushing or blunt trauma hazards (e.g. engines/transmission/blades coming through the roof, internally mounted items dislodging, etc.).

6.10.3.3 **Occupant retention.** Protection should be afforded to occupants by the aircraft's retention system, which comprises the seat, seat retention and occupant restraint system assembly. The retention system plays a major role for all aircraft types in preventing occupant contact injuries associated with body parts flailing into aircraft structures. For helicopters the retention system also plays a predominant role in energy absorption.

6.10.3.4 **Cargo and equipment retention.** Restraint systems should be designed to control cargo and ancillary equipment displacements that are hazardous to occupants during a survivable crash.

6.10.3.5 **Post-crash emergency escape provisions.** Occupants should retain the ability to rapidly evacuate the aircraft during non-crash ground emergencies, and after survivable crash conditions. The ability to escape is impacted by aircraft deformation, lighting, escape hatches, and so on.

Superseded

6.10.3.6 **Post-crash injury prevention.** The crash protection system should be designed to prevent post-crash environmental hazards that could seriously injure occupants. For hazards which cannot be prevented, the crash protection system should protect occupants from exposure to the hazards. Potential post-crash environmental hazards include fire, toxic fumes and submersion. This principle can be extended to include equipment that can improve post-crash survivability after the crash sequence. Such equipment includes first aid kits, survival kits and emergency locator transmitters.

Flight Operations CP considerations

6.10.3.7 **Cargo and equipment configuration.** Cargo (including role equipment) configuration in an aircraft can have significant implications on CP and post-crash egress. Consideration must be applied to the way in which this cargo is arranged (its orientation, presence of sharp edges etc.) and where that cargo is restrained in the aircraft. Specific examples include operating with life rafts in helicopter cabins or specialist medical equipment on Aeromedical Evacuation (AME) fixed wing aircraft. Refer to AMC and GM to DASR ACD.60(a) for further guidance.

6.10.3.8 **Secondary seating.** There are operational circumstances where Mission Essential Personnel (MEP) cannot be seated in crashworthy seats during flight and must utilise non-standard restraints and/or seating, eg Special Operations contingency loading. The CP risks for these circumstances should be routinely assessed and treated in accordance with DASR ORO.70.B – Non- standard aircraft restraint and seating.

6.10.3.9 **Carriage of personal equipment.** Equipment carried on the individual, eg ALSE, load carriage equipment, body armour, should be risk assessed and treated in the context of CP and DASR ORO.70 – Carriage of Personnel on Defence Aircraft. Routinely reassessing the CP risks associated with the carriage of personal equipment is especially pertinent as there are many different forms and versions of ADF combat ensemble.

6.10.3.10 **Egress procedures.** Risks to egress in post-crash circumstances should be considered and treated as part of CP risk assessments. This should include consideration of cockpit/cabin configurations which can block egress routes or cargo/equipment which could make egress hazardous in a post-crash situation.

6.10.4 Guidance and exceptions

6.10.4.1 Given the purpose of the CP requirements are to increase the safety of the personnel on board in the event of a survivable crash, there are some situations where compliance with the ADF CCPDR will not result in a measurable improvement in safety:

6.10.4.2 **Aircraft fitted with ejection seats.** The ability of an occupant to eject from an aircraft prior to a severe crash reduces the benefit which might be obtainable by improving the CP attributes of these aircraft. Previous CP assessments of ejection seat aircraft did not recommend reasonably practicable treatments to reduce the risks of survivable crashes to occupants, when there is the ability to eject from the aircraft in most crash scenarios (refer to DASDRM for further information). It is therefore highly likely, if not certain, that for any aircraft fitted with ejection seats there will be no reasonably practicable treatments for CP shortfalls and thus the risk is considered to be minimised SFARP.

6.10.4.3 **Ostensibly equivalent civil derivative aircraft.** Certain civil derivative Defence registered aircraft may be exempted from CCPDR supplementation, provided all the following condition are met:

Superseded

1. aircraft is compliant to all civil airworthiness requirements defined in its type certification basis;

2. no significant CRE divergence from the civil certified aircraft; and

3. which maintain alignment of CRE and continued operation of the aircraft in a manner ostensibly equivalent to its civil counterpart.

6.10.4.4 The determination of whether this principle applies should be supported by and articulated through the applicable aircraft's SOIU, and be re-evaluated in the case of any CRE changes.

Crashworthiness Limiting factors.

6.10.4.5 Where a particular aspect of crashworthiness is significantly degraded beyond that of other aspects, it is important that the overall level of crashworthiness is still accurately articulated. For example, any aircraft for which the initial impact will never be survivable is unlikely to benefit from best in class post-crash fire protection. In these cases where one aspect becomes a limiting factor for the aircraft, any other aspects that will not provide improvement cannot be considered to "increase" the crashworthiness. This aims to ensure that any limiting factors to the crashworthiness of the aircraft are adequately identified, and that any non-functional safety improvements do not decrease the CP risk. This should not reduce the importance or desire to improve aspects of crashworthiness that can be improved, only that the risks are required to be evaluated and articulated accurately where limiting factors are present, and design changes are not considered in isolation.

Other Considerations/mitigations

6.10.4.6 **Changes to aircraft CRE.** Proposed changes to the CRE of an aircraft have the potential to affect the CP attributes of an aircraft from both an airworthiness and flight operations perspective. For example, a modification that adds significant weight to a helicopter may change the crash impact attenuation properties of the undercarriage. A change in aircraft operating environment may alter the prevalent crash types for which the aircraft was designed. Changes to an aircraft's CRE must be carefully assessed to ensure the level of CP inherent in the original design and its operation are not compromised, and any impacts on extant CP attributes are evaluated to identify treatment options and confirm that associated risks are reduced SFARP.

6.10.4.7 **Planned Withdrawal Date.** Aircraft close to the Planned Withdrawal Date (PWD) are subject to the scope of this guidance. The risks associated with CP shortfalls of Defence aircraft close to PWD must be assessed to ensure the risks in the event of a survivable crash are minimised SFARP. However, due to the expected significantly lower operating hours in the remaining life of an aircraft close to the PWD, the likelihood of a survivable crash occurring is significantly reduced and therefore any benefits gained through treating shortfalls to CCPDR are likely to be significantly reduced. Consequently, treatments are less likely to be reasonably practicable, with the exception of those which are relatively low cost and can be implemented in a short timeframe. The above needs to be considered when involving conducting an assessment and retaining any residual risk, for an aircraft that has been identified for withdrawal from service.

6.10.4.8 **Limited Configuration Control.** Defence may pursue support arrangements involving Limited Configuration Control (LCC) to maintain configuration parity with other operators to minimise in-service support costs and avoid an 'orphan' or unique fleet. Regardless, aircraft with LCC are subject to the requirements of the DASDRM.

Superseded

6.10.5 Treating CP risk to personnel

6.10.5.1 The core working components of this guidance are aligned to SMS requirements, where risk is identified, analysed, evaluated, communicated and managed by the appropriate entity. The CP risk assessment process described here is conducted as part of DASR SMS. The SMS process can then be used to define the means to assess risk, identify treatments, assess the benefit of operational or technical treatments, make a judgement of whether risk has been minimised SFARP, and have the appropriate Risk Management Authority (RMA) retain any residual CP risk.

6.10.5.2 **Mission specific CP considerations.** 'Standing' risk assessments should be based on standard/routine aircraft CRE and any risks identified would be eliminated or otherwise minimised SFARP via additional controls, including amendments to Orders, Instructions, Procedures (OIP). Hence, it is assumed that any key risks will be identified and managed. Mission specific risks refers to risks that would arise from non-standard or operational contingency tasks where additional consideration should be given to any impacts on survivability in the event of a survivable crash. Assessment of mission specific risks is an ongoing process and captured under Core Risk Profiles (CRP), Mission Risk Profiles (MRP) or Risk Management Plans (RMP) through the Risk Management process. A balanced approach to treating risks is required, in order to achieve the mission. This may include assessing the benefits of exposing Defence personnel to any risks, for example, whether the need to carry passengers outweighs any risks associated with a contingency scenario, or the carriage of specific Dangerous Goods (DG).

6.10.6 CP Risk Management Guidance

6.10.6.1 Management of CP risk follows the Defence 7 step risk management process. Given the complexities with assessing CP risk, the below is guidance regarding an acceptable method of conducting that assessment.

6.10.6.2 CP risk assessments should involve a number of stakeholder agencies and organisations. A system must be in place to treat the outstanding risks identified through the risk assessment process. General guidance on Risk Management is contained within the DASR SMS, with the below guidance providing additional CP specific context and guidance. CP risk assessment and treatment processes should be informed by reference to both these sources. This guidance introduces common descriptors for consequence and likelihood, and a common safety risk matrix across the aviation safety and WHS domains. It also introduces likelihood definitions for system level and activity level contexts, which enables risk assessments to be translated across safety management systems. This process involves establishing the risk assessment context, conducting a CP evaluation, establishing the pre-treatment risk level, identifying and prioritising risk treatments, establishing the post-treatment risk level and communicating the outcomes to the appropriate authority to inform risk treatment decisions.

Establish the CP Context

6.10.6.3 The context of the risk analysis for CP is that the risks to occupants for design related shortfalls are only realised in the event of a 'survivable' crash. Although CP risks are usually related to aircraft designs which are not fully compliant to the CCPDR, risk treatments will eliminate or otherwise minimise the risk SFARP through either operational or design controls, e.g. cease or minimise flight over water if there is insufficient life rafts/life raft capacity in accordance with the

Superseded

CCPDR. Design related controls aim to improve aircraft crash performance by following principles contained in the Defence Aviation Safety Design Requirements Manual (DASDRM).

6.10.6.4 The CP evaluation is to be conducted by the relevant organisation for acquisition and in-service aircraft types. This is conducted in accordance with DASR Part 21 and the Authority prescribed CCPDR in the DASDRM. The result will be an overall level of CP provided to occupants in the event of a survivable crash, expressed in terms of the CP risk level definitions in Table 1.

6.10.6.5 Where there are shortfalls against the CP design requirements, the risks associated with those shortfalls need to be identified, analysed and evaluated to inform risk treatment decisions. The risks associated with CP shortfalls will be at their most extreme in a worst case survivable crash and it is these risks that should be considered in the risk assessment.

Table 1 – CP Shortfalls Definitions	
Level of CP Provided to	Description
Good	The level of CP provided to occupants largely meets the CCPDR.
Moderate	The level of CP provided to occupants exhibits some shortfalls against CCPDR. The envelope for 'potentially survivable crashes' is therefore reduced.
Poor	The level of CP provided to occupants exhibits significant shortfalls against CCPDR. The envelope for 'potentially survivable crashes' is therefore markedly reduced.

Table 1: CP risk level definitions

Pre-treatment Risk Assessment

6.10.6.6 The level of risk associated with CP shortfalls, based on the existing CP attributes of the design for the current ADF CRE must be established to inform risk treatment decisions. The risk context includes the aircraft CP design and operating context as defined in the Statement of Operating Intent and Usage (SOIU) and supporting operational instructions that may include roles, missions/profiles, operating environment, annual rate of effort and passenger carriage requirements. This risk analysis must be conducted collaboratively by the relevant MDOA/MTCH for airworthiness aspects and MAO representatives for operational aspects. The key activities to be completed include:

1. **Identification of the worst case survivable crash scenario within the ADF CRE.** This activity is largely subjective as it is based on the ADF operating context (roles, missions/profiles, etc.).

2. **Establishing Consequence.** The evaluation of the CP design against the CCPDR (Good, Moderate or Poor) is used to inform the pre-treatment consequence in the event of a survivable crash. The Guidance column in Table 2, together with informed judgement of the operating context by technical and operational representatives, should be used to establish the consequence level.

Superseded

Table 2 – Safety Consequence and CP Guidance Descriptors		
Consequence Label	**Safety Matrix Definition**	**Guidance in CP Context – in the event of a survivable crash**
(E) Catastrophic	• Multiple fatalities **OR** 10 or more injuries/illnesses categorised as **'Critical'**	CP Level of Poor – the envelope is significantly reduced. Where there are multiple occupants on-board (typically crew and passengers in vicinity of >10 occupants), it would be expected that there would be multiple fatalities and serious injuries
(D) Critical	• Single fatality and/or permanent disability **OR** 10 or more injuries/illnesses categorised as **'Major'**	CP Level of Poor – the envelope is significantly reduced. Where there are few occupants on-board (typically crew only), it would be expected that there would be at least one fatality and serious injury
(C) Major	• Serious injury or illness requiring immediate admission to hospital as an in-patient and/or permanent partial disability **OR** 10 or more injuries/illnesses categorised as **'Moderate'**	CP Level of Moderate – the envelope is reduced; however, there is a moderate amount of crash protection. Fatalities are not expected to occur, but could occur
(B) Moderate	• Injury or illness causing no permanent disability, which requires non-emergency medical attention by a registered health practitioner **OR** 10 or more injuries/illnesses categorised as **'Minor'**	CP Level of Good – shortfalls are not significant, so the envelope is only marginally reduced. Occupants are not likely to sustain serious injuries, but if occurring it is likely that the injuries are somewhere between serious and minor
(A) Minor	• Minor injury or illness that is treatable in the workplace (first aid) or by a registered health practitioner, with no follow up treatment required	CP Level of Good – while this is potentially a CP context consequence, it is only likely in the 'best case' survivable crashes and would therefore not normally be applicable

3. **Establishing Likelihood.** Likelihood for the CP risk analysis is the likelihood given for the probability of a survivable crash occurring on a per annum basis. This likelihood will be based on a combination of available data inputs including the worst case survivable crash scenario, accident rates (where available for the aircraft being assessed or similar aircraft types), fleet ROE, System Safety Program data (where available and appropriate for use in determining a crash rate) and ADF operating context as defined in the SOIU. Note that an indicative quantitative value for likelihood can be expressed in terms of the percentage likelihood of a survivable crash occurring on a per annum basis, based on the aircraft ROE and the predicted survivable crash rate. Refer to Table 3.

Superseded

Table 3 – Safety Likelihood and CP Guidance Descriptors			
Likelihood (p.a.) = Predicted Future Crash Rate (crashes/hour x Annual Rates of Effort (ROE) (hours/year) **Likelihood Label** (per year)	**Safety Matrix Definition for *System Context***	***Qualitative Guidance* on the likelihood of a survivable crash**	***Qualitative Guidance* on the likelihood of a survivable crash occurring during fleet operations on a per annum basis**
(5) Almost Certain	• Expected to occur several times a year or often during the system life cycle • Is known to occur frequently in similar systems being used in the same role and operating environment	• Aircraft with known poor safety records and significant safety deficiencies in the ADF CRE context • Aircraft that fly all their operations in the 'challenging environment'	Greater than 20% chance per annum
(4) Probable	• Expected to occur one or more times per year or several times in the system life cycle • Is known to have occurred, but is not certain to occur	• Aircraft that fly high risk flight profiles for most of their operations and/or experiencing high rates of effort are likely to fall under this definition of likelihood • Aircraft that fly the majority of their operations in the 'challenging environment'	Greater than 10% but less than 20% chance per annum
(3) Occasional	• Expected to occur less than once per year or infrequently during the system life cycle	• Aircraft that fly high risk profiles for a substantial part of their operational life	Greater than 5% but less than 10% chance per annum
(2) Improbable	• Not expected to occur, but possible to experience one or more events during the system life cycle	• Aircraft that usually fly low risk flight profiles in a 'benign environment', however sometimes fly high risk profiles as required	Greater than 3% but less than 5% chance per annum
(1) Rare	• Only expected to occur in rare or exceptional circumstances or no more than once during the system life cycle	• Aircraft that fly a majority of their operations in the 'benign environment' • Aircraft that almost always fly low risk profiles and operate similar to RPT aircraft	Less than 3% chance per annum

Superseded

4. **Establishing Likelihood -** Example. If the survivable crash rate for an aircraft type is determined as 8.5×10^{-6} survivable crashes per flight hour and the fleet annual ROE is 6500 hours, then the likelihood of a survivable crash occurring on a per annum basis is expressed as: Likelihood = $8.5 \times 10^{-6} \times 6500 = 0.055 = 5.5\%$. Based on the quantitative guidance, the likelihood is evaluated as OCCASIONAL (between 5% and 10%). The qualitative guidance, in conjunction with operational and technical staff judgements, should be used to validate the evaluation, especially when the calculated value is on the margins of likelihood levels, as per the above example calculation.

Further analysis of the aircraft type and its CRE may determine that the value calculated is not representative of the actual likelihood. Where appropriate justification is provided, the likelihood level should be adjusted to reflect the level judged to be more appropriate. For example, based on a qualitative analysis, IMPROBABLE may more accurately describe the likelihood for the example case.

5. **Guidance on determining relevant survivable crashes for CP risk analysis.** Many of the issues encountered with the results of risk analysis from implementation of the previous CP policies have been due to poor quantitative evaluation of the risks to occupants in the event of a survivable crash, based on a limited analysis of the survivable crashes for the given aircraft type. In many cases the derived likelihood of a survivable crash occurring has not been representative of future crash rates. Usually, simple extrapolation of the historical accident rates is not indicative of future crash rates of an aircraft. A critical analysis of the accident data can dramatically improve the accuracy of predicted survivable crashes. There will always be uncertainty in predicting future events and a sound analysis of the likelihood should clearly identify and communicate any uncertainty in the predicted crash rate. Poor examples are seen where the crash rate utilised for CP risk analysis is the raw number of accidents experienced divided by the total operational hours flown. This approach can be very misleading, as it usually takes into account accidents that occurred many years into the past which are likely not relevant to the current and future airworthiness framework or the aircraft's current CRE.

6.10.6.7 A survivable crash is difficult to define and it is almost impossible, in most cases, to obtain detailed crash data to determine which crashes were survivable or not. Therefore, it is very difficult to establish an accurate prediction of future survivable crash rates. As a minimum, the preferred approach is to apply a 'reasonable estimate' of the survivable crash rates. However, if this cannot be established then the analysis may assume that most crashes or serious accidents and incidents included in data sets are survivable in order to determine the most applicable likelihood from one of the five definitions in Table 3. That is, an estimation of the accident rate of the aircraft is the 'best estimation' for the CP risk analysis. Careful assessment and judgement is required to filter applicable data, when considering aspects such as the nature of the crash, deaths versus injuries, world-wide versus single operator data and categories of aircraft damage.

6.10.6.8 The crash rate should be expressed as a likelihood of a survivable crash occurring on a per annum basis. This is important because the exposure of the risk to occupants is directly related to the rate of effort of the aircraft. The more hours the aircraft operates, the greater the exposure and the greater the likelihood of an accident occurring per year. The converse applies.

6.10.6.9 Both the qualitative and quantitative guidance in the Guidance columns in Table 3 should be considered by the technical and operational representatives, together with their informed knowledge of the operating context, to determine the likelihood level. The qualitative guidance should be used to assist the evaluation of the likelihood in conjunction with the predicted future crash rate to provide an outcome that suitably reflects the risk level to occupants in the event of a survivable crash.

6.10.6.10 **Establish the CP risk level.** Apply the established likelihood and consequence determinations to the Defence Harmonised Risk Matrix to establish the pre-treatment CP risk level (Very Low, Low, Medium, High, Very High).

CP Risk Treatment

Superseded

6.10.6.11 Assess the availability and suitability of risk reduction options (controls) according to the standard risk management hierarchy of controls, for each shortfall identified against the CCPDR. The assessment is to consider the controls in order of most to least effective, per the standard hierarchy of controls described in DASR SMS. The end-state for this step is an approved list of additional controls to be implemented for the aircraft system. The key activities to be completed include:

1. Perform a joint airworthiness and operational assessment to review all design based controls, review the current operational controls, and identify possible new controls as per the hierarchy of control options, including any known 'good practice'.

2. Assess the implementation cost (financial, capability, etc.) for each proposed control.

3. Determine the treatments to be implemented in order to reduce the pre-treatment CP risk level SFARP. In determining the practicability of implementing a control, the applicable Capability Manager should be consulted to ensure there is no unacceptable degradation in the aircraft's operational performance/capability, and a Cost Benefit Analysis (CBA) should be produced to support the decision process. A CBA may be as simple as a basic cost versus benefit statement, through to a comprehensive and detailed analysis. This could include consideration of factors such as capability impact, effect on crew training/workload, etc.

6.10.6.12 The focus of the CP risk assessment to this point has been in the 'safety' dimension using the Defence Harmonised Risk Matrix. The other dimensions of the risk management process (Mission, Capability, Reputation, Financial and Environment) should also be reviewed to assess the wider implications of the controls being applied for CP. Changes to the risk profile in other risk management dimensions may drive changes to the proposed controls for the safety risk. Accordingly, there will be an iterative approach to the assessment to ensure an appropriate balance between safety and mission, capability reputation, financial and environment as deemed appropriate by Commanders, Managers and the Authority. Risk Registers, which are currently managed for each aircraft type, should be reviewed for possible flow-on changes to other risks being managed. Where necessary, risks should be updated to consider flow-on impacts to other risk management dimensions, i.e. the controls to be implemented for CP may impact other aspects of the aviation system, and flow-on impacts managed under DASR SMS.

6.10.6.13 **Treatment Decision.** Decide, at the appropriate management levels, on the controls to be applied, the priority, and the organisation to implement each control. In making this determination, the decision process for the CP risk analysis and evaluation is to be documented, including the reasons for accepting or rejecting the assessed treatment options, and presented to management to inform risk treatment decisions.

6.10.6.14 **Post-treatment Risk Assessment.** Similar to the pre-treatment risk assessment, the key activities are re-establishment of the overall CP level (Table 1), re-establishment of the consequence (Table 2) and likelihood (Table 3) levels, and finally, determination of the post-treatment CP risk level using the Defence Harmonised Risk Matrix.

6.10.6.15 **Risk Management Decision.** Risk management authorities (RMA) reside within the Chain of Command. Unless the relevant Service Chief directs otherwise, based on the final (post-treatment) CP risk level, the CP risk should be processed and retained as per DASR SMS 'Safety accountability and responsibilities'. This is to include the proposed controls (Treatment Plan), action agencies, and timeframes for implementation (priority). Additionally, updates to other risk dimension risks should also be presented to the appropriate Risk Management Authority (RMA).

Superseded

6.10.6.16 **Risk documentation.** In accordance with DASR SMS Regulation, CP risk treatment documentation should be produced, reviewed and stored by the responsible organisation as part of their SMS structure.

Superseded

7. Initial and Continued Airworthiness

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

Superseded

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

Superseded

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

Superseded

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

e. Chapter 7.6: Design and production organisations.

Superseded

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

Superseded

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

Superseded

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

   vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

Superseded

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the

Superseded

TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity
2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration
3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

Superseded

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved
2. broad detail on the design and aircraft intended use
3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.
4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:
   i. change to the design or intended use
   ii. change to compliance demonstration approach (including the means of compliance)
   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification
   iv. change to design organisation resources or approvals
2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)
3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

Superseded

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended' design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

Superseded

ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by

Superseded

which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or

2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA

2. the CAA/MAA is sufficiently experienced in certification of the particular design activity

3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed

4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed

5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

Superseded

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.
4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

Superseded

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:
   i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;
   ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
   iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

Superseded

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

Superseded

1. major change to the existing MTC under DASR 21 Subpart D, or

2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.

2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be

Superseded

simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,
2. the TCAE reflects the agreement and arrangements under which such applications may occur, and
3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

Superseded

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b) 21.A.93(b)	Yes	Certification programme should be presented as a CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	

Superseded

Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The

Superseded

applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer

Superseded

to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th colspan="2">Not Significant
(21.A.101)(b)(1))</th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

Superseded

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

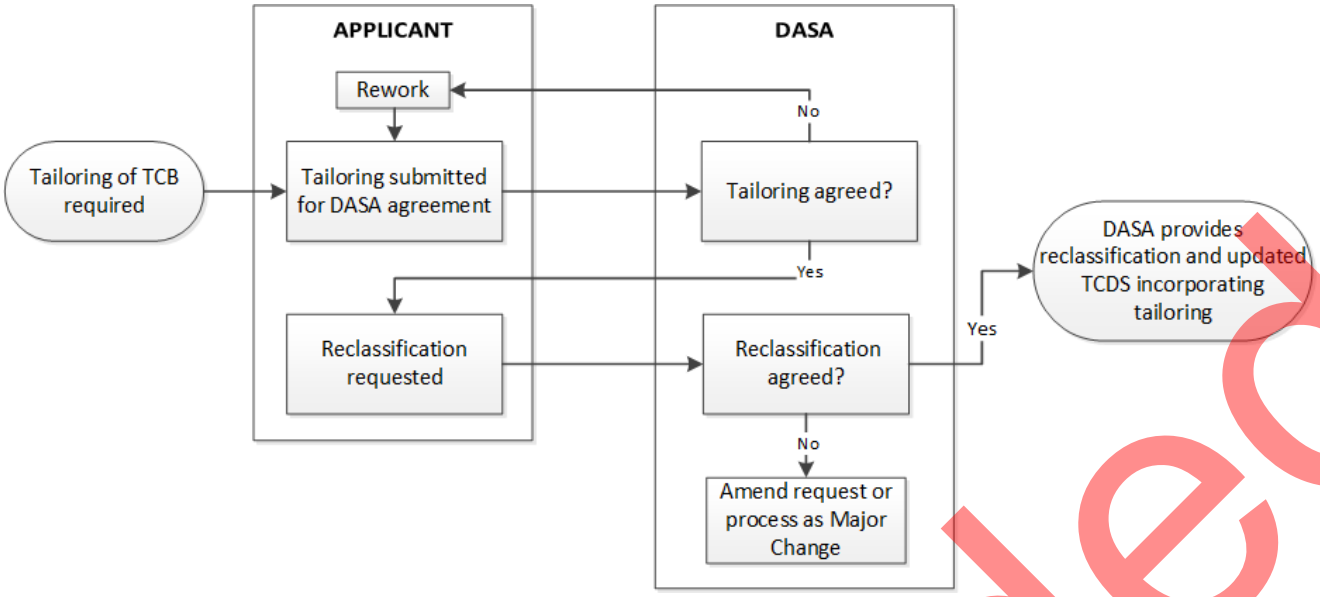


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

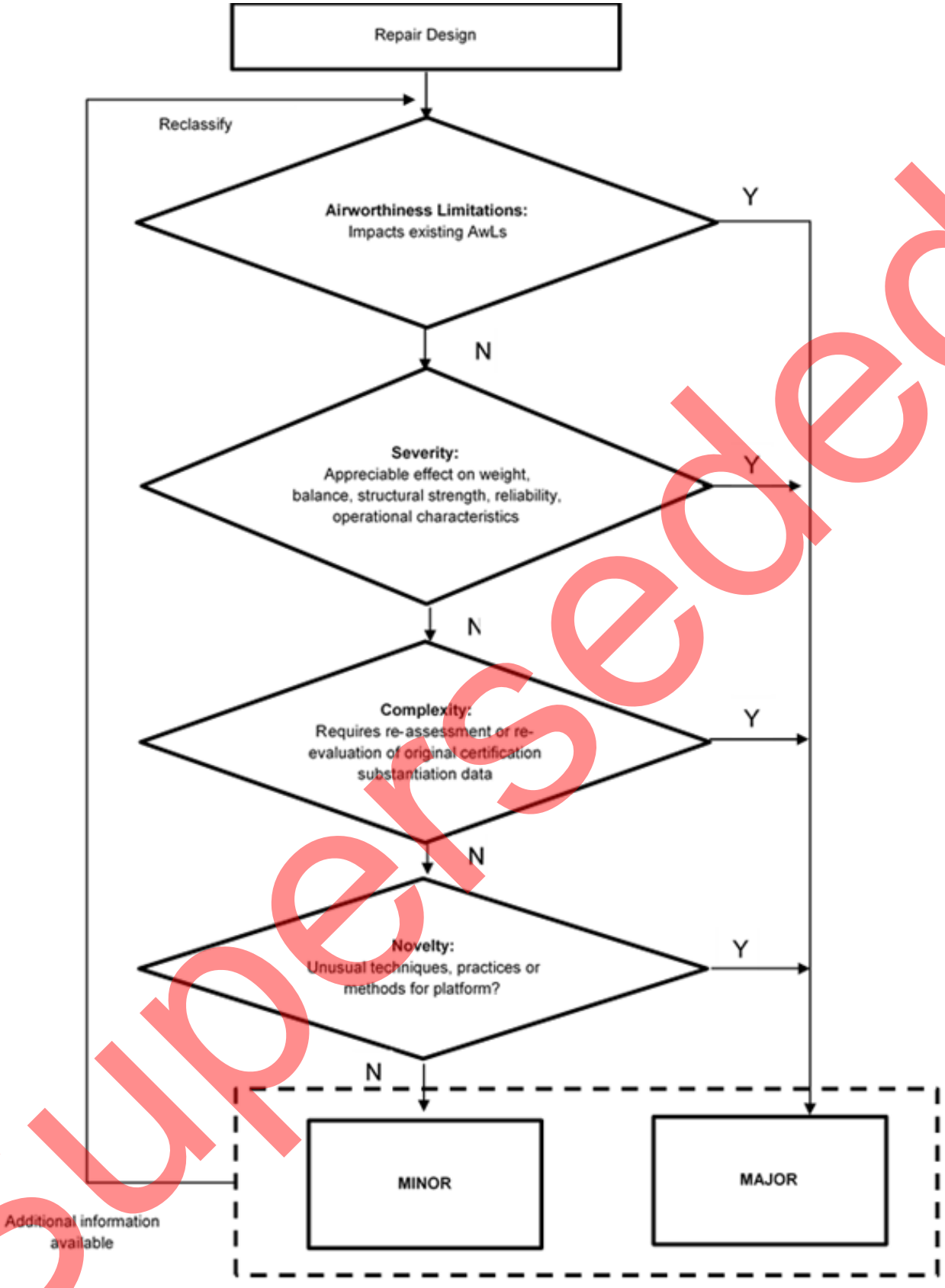


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an

Superseded

impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before

Superseded

distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant

Superseded

method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine /

Superseded

Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.
   7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;
3. manuals are provided in a medium compatible with user requirements;
4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a

Superseded

manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

Superseded

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

Superseded

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR

Superseded

Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

Superseded

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Superseded

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4 Continued Airworthiness

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

Superseded

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

   i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

Superseded

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause. Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

Superseded

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

Superseded

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

Superseded

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action
4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the

Superseded

WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.
2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)
2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO
3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the

Superseded

same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

Superseded

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical

Superseded

foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Superseded

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

Superseded

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the

Superseded

aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority (inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key

Superseded

elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance*[79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

Superseded

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

    i. a defect that cannot be deferred as it has been assessed to endanger flight safety

    ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

    iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

    iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either operational tasking or for the purpose of flight test (to support role expansion activities).

Superseded

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

Superseded

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

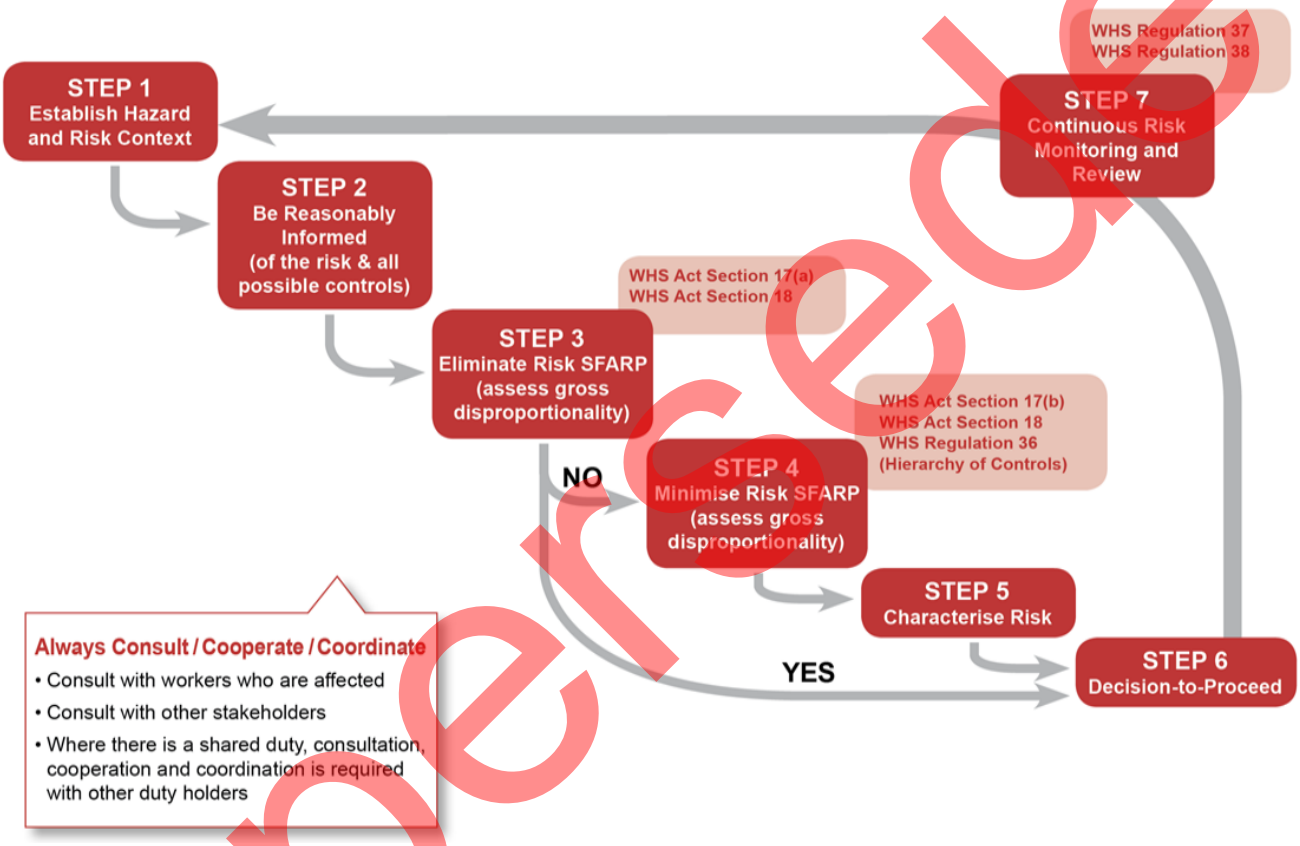


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

Superseded

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

Superseded

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in

Superseded

the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

Superseded

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage; or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In

Superseded

addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

Chapter 7.6 Design and Production Organisations.

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

Superseded

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation

Superseded

QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

Superseded

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

Superseded

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

Superseded

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/ POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

Superseded

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

Superseded

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

Superseded

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]
6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)
7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command
2. Joint Proof and Experimental Unit within Joint Logistics Command
3. Aerospace Explosive Ordnance Systems Program Office within GWEO
4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

Superseded

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly, MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives

2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program

3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release

4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes

5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

Superseded

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

7.1. Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th><th></th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

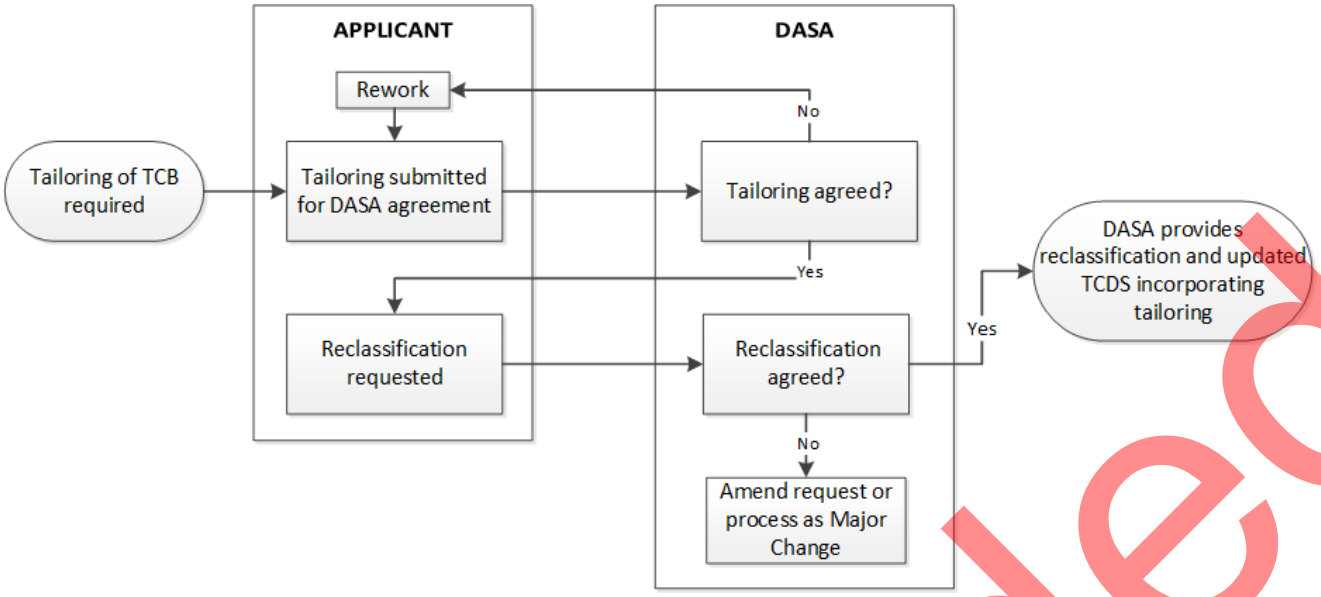


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

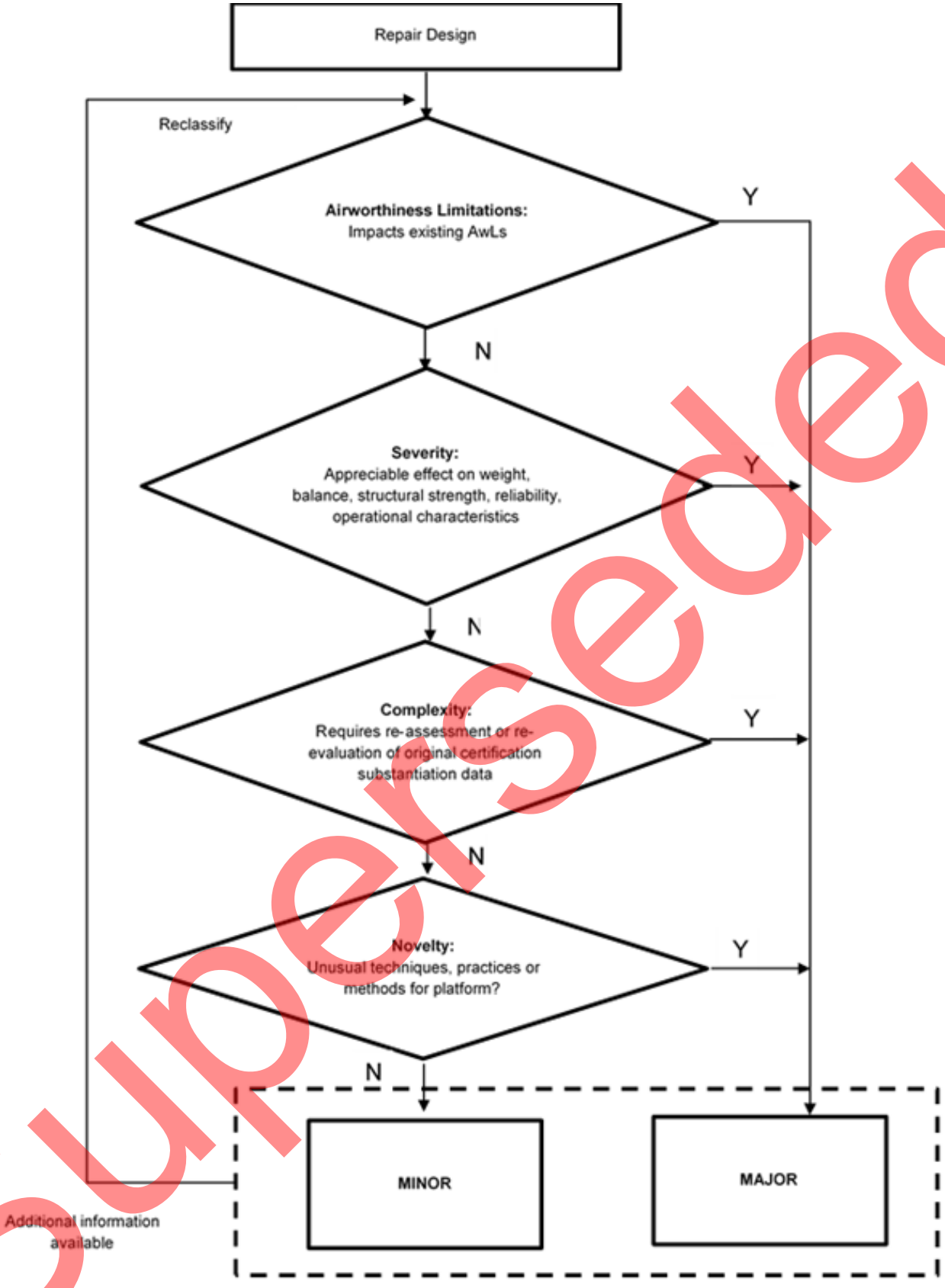


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46] .

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

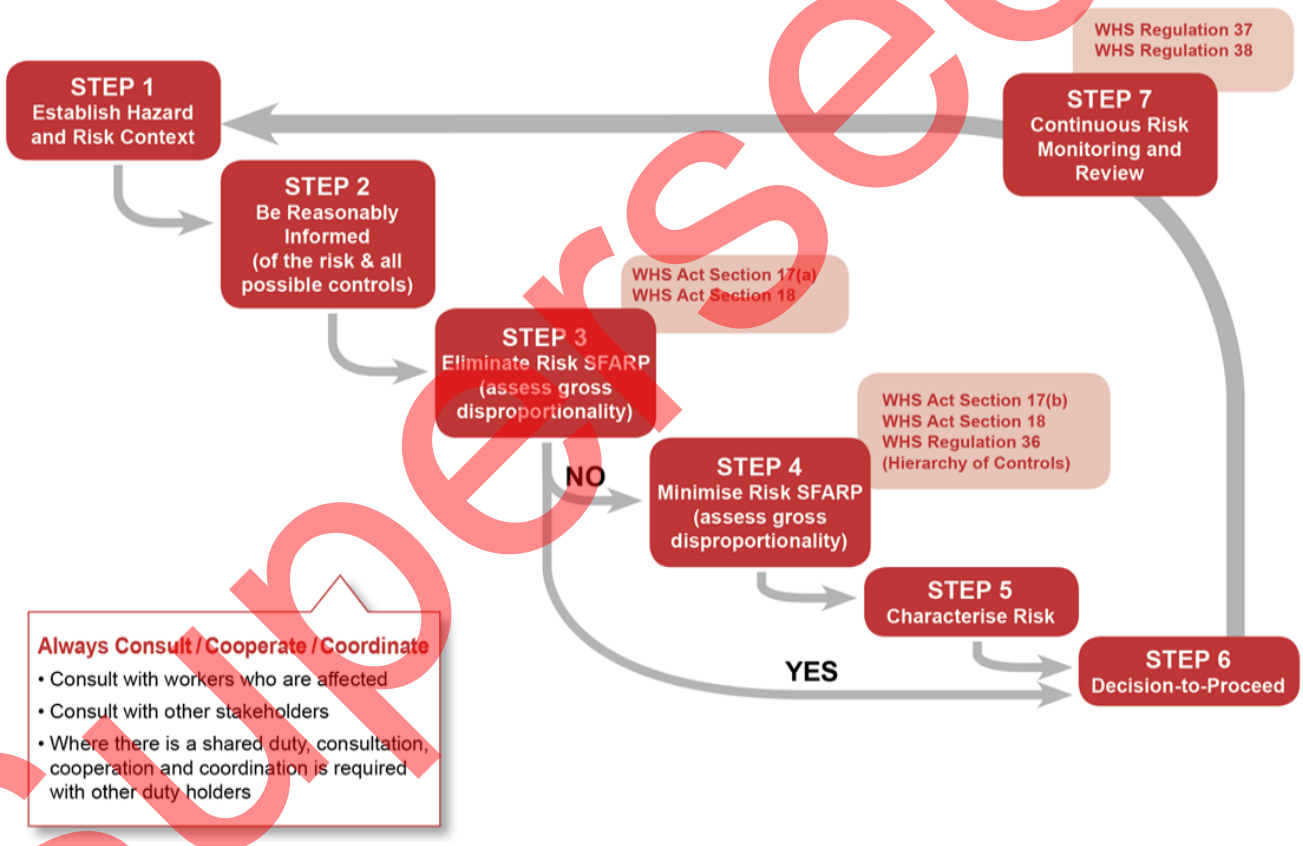


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

7.2. Product Certification

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th><th></th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

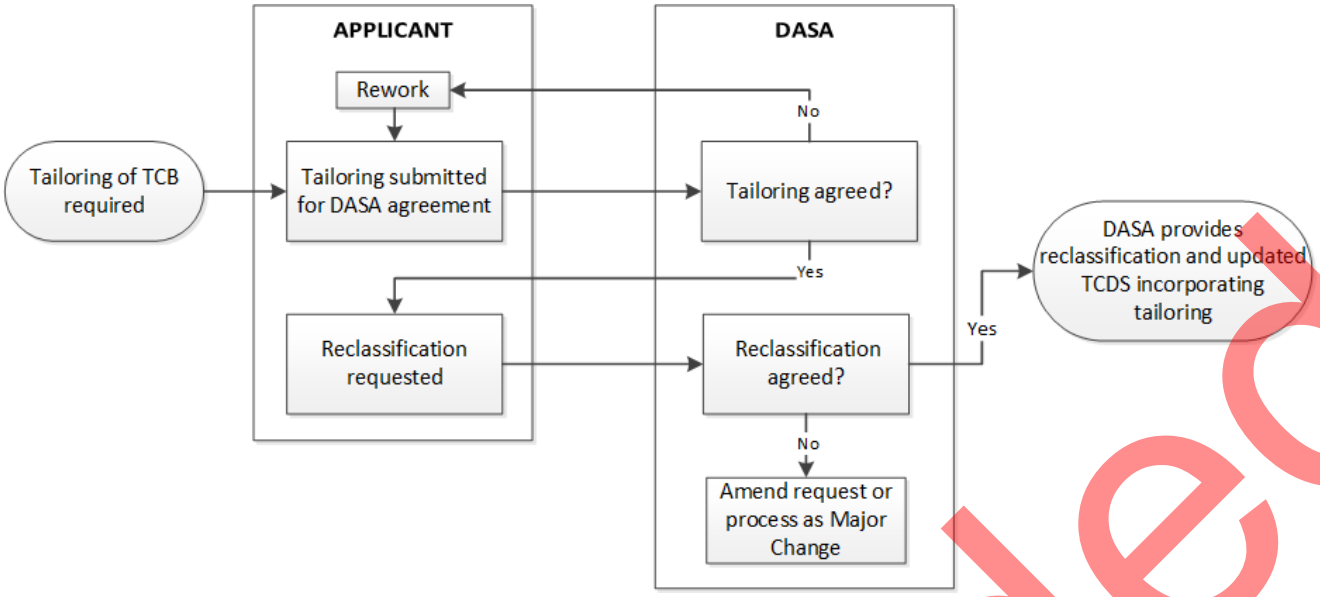


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

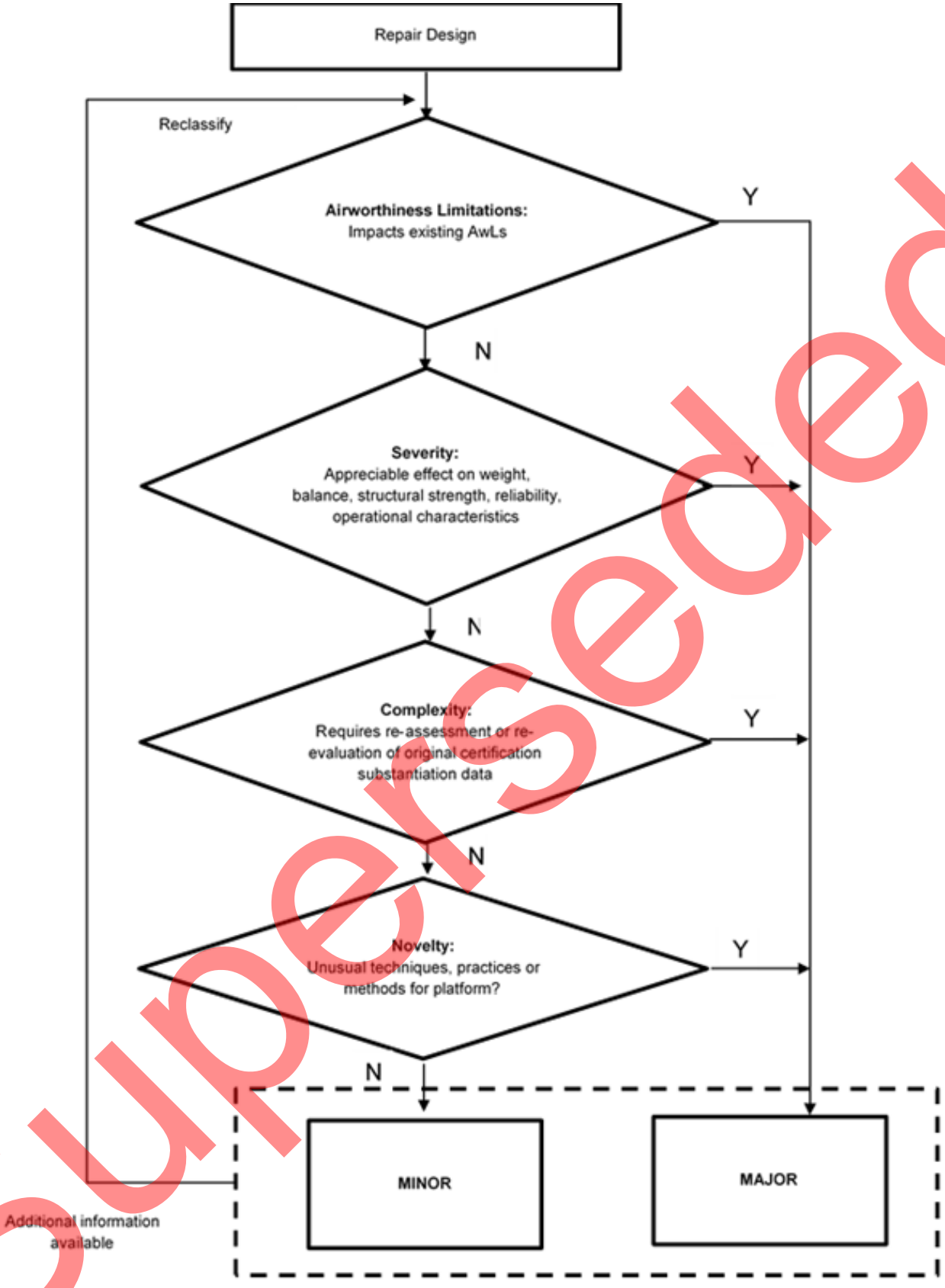


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

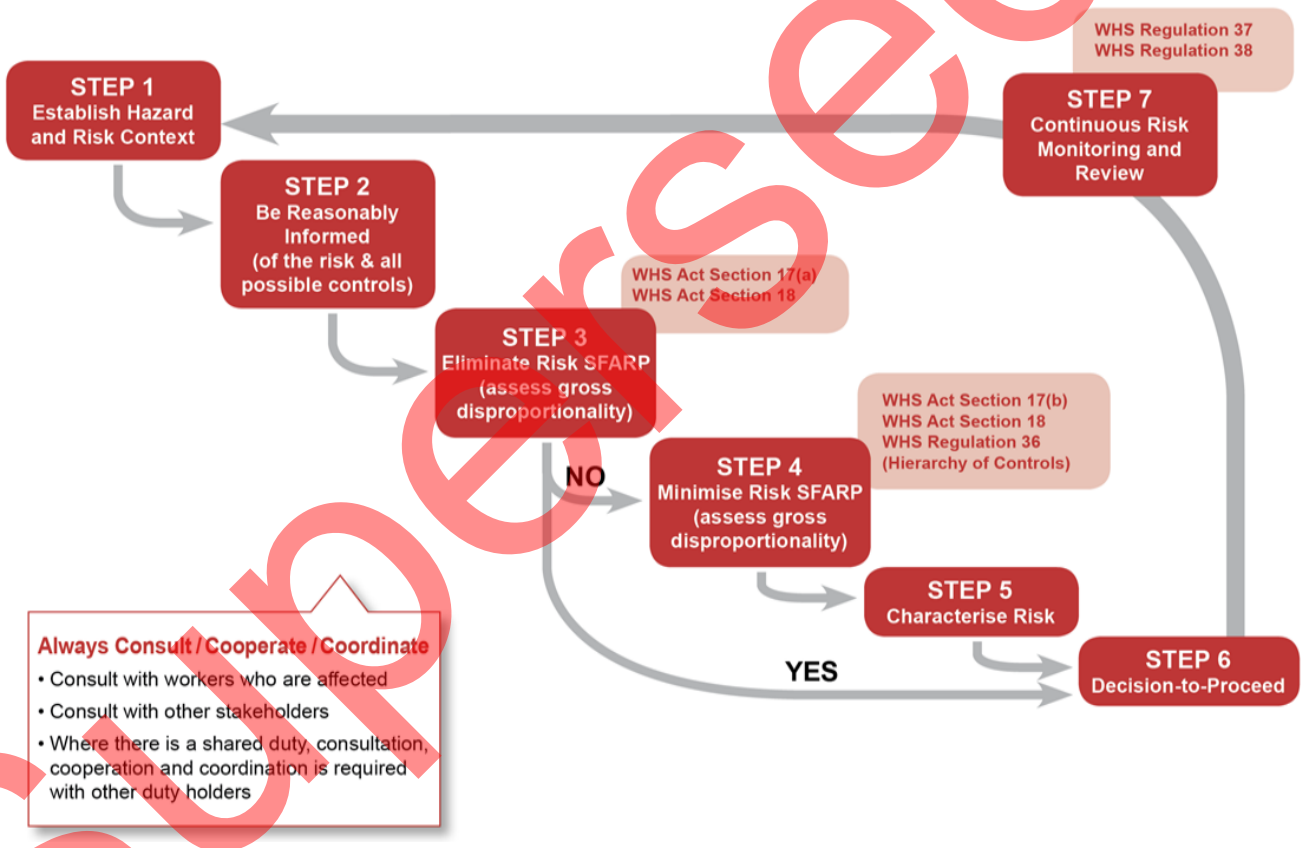


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

Annexes

Annex A – Tailoring a Type Certification Basis and Military Certification Review Items

Introduction

(a) During a certification program, there may be a need to tailor[1] either:

1. the Primary Certification Code (PCC), when seeking an initial certification approval,
2. the existing Type Certification Basis (TCB), when seeking a major change approval.

(b) Throughout this Annex, the term 'tailoring of the TCB' is used to cover both tailoring of the PCC in order to develop a TCB for an initial certification approval, and tailoring of an established TCB.

(c) Tailoring may be required to provide supplementary requirements for a specific technology area, to specify later amendments of requirements, or to otherwise account for the Defence Configuration, Role and Environment (CRE). This tailoring may occur during initial certification of the platform or during changes to the type certificate. The Defence Aviation Safety Design Requirements Manual (DASDRM) prescribes essential and recommended design requirements for a range of technologies and these are incorporated into TCBs through tailoring when required.

(d) Tailoring of the TCB can be achieved by directly including additional requirements or standards in the TCB and Type Certificate Data Sheet (TCDS), or through use of a Military Certification Review Item (MCRI).

(e) This Annex supports Section 7.2.2 and Section 7.2.3 in terms of providing further guidance on tailoring of the TCB, including:

1. when an MCRI is required and the MCRI categories adopted and employed by DASA
2. when Operator agreement is required to support tailoring of the TCB and how that agreement should be achieved
3. illustration of the process for obtaining DASA agreement on tailoring of the TCB.

Tailoring of the TCB Without an MCRI

(f) **Supplementation of the PCC.** Where tailoring is required to supplement the PCC with additional requirements, this can be done directly (without an MCRI) where the supplementation does not require discussion or explanation, and where the supplementation does not rely on reference to internal Defence documents[2]. For example MIL-STD-464C for Electromagnetic Environmental Effects can be listed directly in the TCB and TCDS, because it is a recognised standard from an C/MAA which is widely available for use by future designers, and requires no further discussion or explanation.

(g) **Use of later amendments of airworthiness requirements.** Where a change proposes to use later amendments of airworthiness requirements than the current platform TCB, this can be recorded directly in the TCDS without the use of an MCRI. DASA will review and provide

Superseded

agreement to the proposed use of later amendments via the applicable Certification Program Plan (CPP). Elect to Comply MCRIs will be used to record the use of later amendments only when further justification needs to be recorded, such as when there is a need to record justification that the change to the later standard does not have a negative impact on safety, or where there is a need to place limits or conditions on the use of the later amendment.

(h) **TCDS Update.** Where tailoring is incorporated into the TCDS directly, without an MCRI, it will be made clear whether the tailoring applies to the entire platform or only to certain systems or modifications. For example, if a new requirement is introduced for Electromagnetic Environmental Effects for a specific modification, but the remainder of the aircraft is not certified to that requirement, the TCDS will clearly state that the requirement is only applicable to the modification.

MCRI Categories

(i) An MCRI is an agreement between DASA and an applicant and provides formal documentation of the TCB tailoring. DASA employs the five categories of MCRIs outlined below. These categories and their descriptions/definitions have been adapted for Defence's context from European Military Airworthiness Certification Criteria (EMACC) and European Aviation Safety Agency (EASA) descriptions.

1. **Exception MCRI.** An Exception MCRI details agreed tailoring to an Airworthiness Code or design standard that reduces the level of safety inherent in the native requirement, on the basis that requiring compliance would adversely affect Defence capability. Exception MCRIs are used where it is not practicable to achieve or demonstrate compliance to a requirement in the PCC or TCB due to the impact on capability, and an equivalent level of safety cannot be demonstrated. Exception MCRIs require Operator agreement based on appropriate understanding of the risk and potential controls[3].
2. **Special Condition MCRI.** A Special Condition MCRI details those elements of the design for which a bespoke certification specification has been developed[4].
3. **Elect to Comply MCRI.** An Elect to Comply MCRI details those elements where the use of a later version of the PCC or alternative standard has been agreed[5].
4. **Equivalent Safety Finding MCRI.** An Equivalent Safety Finding (ESF) MCRI details where an airworthiness requirements or standard cannot be met through direct compliance, and agreement has been reached to provide a safety argument to demonstrate that an equivalent level of safety has been achieved. ESF MCRIs that rely on the implementation of operational controls to achieve an equivalent level of safety require Operator agreement[6].
5. **Interpretive Material/Means of Compliance/Acceptable Means of Compliance (IM/MOC/AMC) MCRI.** An IM/MOC/AMC MCRI is used where the applicant proposes to use an extant IM/MOC/AMC, but only in parts or with some changes to the content, or if there was a discussion about the application of such documents, which needs to be recorded.

(j) MCRIs cannot be assigned multiple categories. In certain cases, a Special Condition or Exception MCRI may include content from a different MCRI type, for example for technology areas where the determination of the certification requirement/standard is based on a risk

Superseded

decision, such a Defence Long Range Operations (DLRO). These MCRIs will be assigned a single category based on the primary type of tailoring, in the case of DLRO this would be a Special Condition MCRI. However, ordinarily where different types of tailoring is required (such as a partial ESF and partial Exception), it is expected that these will be included in separate MCRIs to cover each type of tailoring.

(k) A template for an MCRI is available on the DASR Templates website.

Grouping Issues into a Single MCRI

(l) Tailoring to multiple elements of the TCB can be 'grouped' into a single MCRI, where the tailoring is associated with a common issue or relates to the same technology area. Any MCRIs that 'group' issues should be able to be given a meaningful title that encompasses all of the tailoring inside. If a meaningful title cannot be developed due to the MCRI containing disparate topics, then they should be separated into multiple MCRIs. The decision on appropriate grouping of issues into a single MCRI ultimately rests with the Military Type Certificate Holder (MTCH), who will be responsible for managing the MCRI through the life of the platform. A key aspect of DASA agreement will be the assurance that decisions around MCRI grouping are suitable for long-term management of the TCB.

Operational Controls and Risk Management Associated with Tailoring the TCB

Overview

(m) In some cases, tailoring of the TCB requires agreement from the relevant Operator. Operator agreement is required where operational controls are introduced to overcome design shortfalls or where there is a need to manage a level of risk above that represented by compliance with Authority prescribed design requirements and standards.

(n) This sub-section outlines when Operator agreement is required to support tailoring of the TCB, and how that agreement should be achieved.

Operator Agreement for Tailoring of the TCB

(o) An MCRI should be used for any tailoring of the TCB that requires Operator agreement. The following situations and types of MCRIs must be underpinned by Operator agreement:

1. MCRIs that result in a level of risk above that represented by compliance with the Authority prescribed design requirements and standards (ie Exception MCRIs and some Special Condition MCRIs)

2. MCRIs that rely on the implementation of operational controls to achieve an equivalent level of safety to a TCB requirement or standard (ie some Equivalent Safety Finding MCRIs).

(p) MCRIs that require Operator agreement must include a reference to where that agreement was achieved on the front page of the MCRI.

(q) Operator agreement must be provided prior to requesting DASA agreement.

Superseded

(r) Operator Agreement. Tailoring of the TCB that results in an 'elevated level of risk'[7] must be underpinned by Operator agreement. This Operator agreement must be based on appropriate understanding of the risk and potential controls, through the completion of a WHS compliant (7-step) risk management process (refer DASR GM SMS.A.25(b)(2)(2.2) and DASA AC 003/2018 Risk Management in the DASP).

(s) Risk management and Operator agreement underpinning an MCRI can be documented in an Airworthiness Issue Paper (AwIP)[8]. For non-complex issues with minor safety impact this risk management and Operator agreement can alternatively be documented in an equivalent risk management document, such as the webform AE628 'Risk Decision Brief' (RDB). The RDB does not include a step for DASA input[9] and, therefore, DASA can only retrospectively review the risk management process. This is suitable for low-level and non-complex risks, where the risk management is a simple process for the Operator to complete. However, this approach is rarely suitable for more significant or complex risks where DASA input may be required to confirm the understanding of the risk associated with the non-compliance, or to confirm that potential controls have been identified and evaluated appropriately. The AwIP process includes a section for a DASA position, enabling DASA to review the risk evaluation and provide advice to the RMA prior to decisions being made, and therefore is appropriate for more complex or higher level risks.

(t) A key consideration in the acceptability of any risk management process used to justify an MCRI that has an elevated level of risk, is that it must meet the same outcomes as the AwIP, ie it must:

1. clearly document the full 7-step risk management process based on an accurate understanding of the hazards and risks associated with the TCB non-compliance
2. demonstrate that co-ordinated technical and operational input have been provided
3. show that the risk has been appropriately retained.

(u) Risk management cannot be achieved directly through the MCRI as this is an agreement between the applicant (ie project office or MTCH) and DASA, documenting tailoring of the TCB, and does not include the entity responsible for the risk management (ie the Operator).

(v) Any document used to demonstrate Operator agreement for an MCRI must be clearly referenced in the MCRI and traceable in the future. A 'live' document that undergoes frequent update (such as a Hazard Log) does not provide a suitable enduring reference for the risk management decision (though it may be used for continuous monitoring and review of a risk that has been assessed and retained elsewhere).

(w) **Documentation.** The responsibility for the management of a TCB and the responsibility for the management of risk associated with TCB shortfalls belong to two different entities. The applicant is responsible for developing / managing the TCB and ensuring that the type design complies with the TCB, and that the risk associated with any design shortfalls is identified and communicated to the Operator. The Military Air Operator (MAO) is responsible for the management of risk associated with their platform(s). As such, the documentation of the TCB tailoring is separated from the documentation on the management of the associated risk, allowing the applicant (ie project office or MTCH) to manage the former while the MAO manages the latter. While the MCRI must include a reference to the relevant Operator

Superseded

agreement, it cannot not include discussion on the risk, especially the risk characterisation, for the following reasons:

1. Duplicating the risk management information over two documents (eg the AwIP and MCRI) can lead to conflicts if they are updated separately. Noting that open AwIPs can undergo regular updates as part of an effective continuous monitoring and review system, including the risk detail in the MCRI could drive unnecessary updates to the TCB (via updating the MCRI). Updates to the MCRI should only be required when there is a change to the TCB tailoring that has been agreed.

2. The MCRI is used to document what standard/benchmark has been accepted for a design, and is underpinned by sound risk management. The risk associated with the MCRI can change as controls (particularly operational controls) are implemented or removed, but this does not necessarily change the type design/certificate and therefore should not automatically require the MCRI to be updated. Changes to controls which impact on the type design/certificate, or which impact on the level of compliance/tailoring in the MCRI, will require the MCRI to be updated.

3. Continuous monitoring and review of the hazards and risks on the platform is the MAO's responsibility. The MTCH and supporting design organisation(s) will provide considerable input to the risk management process for hazards and risks associated with the type design however, it should remain clear that the ultimate responsibility for the risk management is with the MAO.

(x) The MCRI must clearly outline how the design does not meet the TCB, what (if any) standard/ requirement the design does meet instead, and any relevant controls which have been agreed in lieu of the original requirement (ie risk controls which have been agreed to enable the tailoring to occur)[10]. It is not sufficient to reference out to the AwIP (or other risk management document) to provide the understanding of how the TCB is being tailored, as those documents are not part of the certification of the platform and may not be accessible to future designers.

Risk Controls and Operator Agreement for Equivalent Safety Finding MCRIs

(y) Equivalent Safety Finding (ESF) MCRIs may be agreed by DASA if the risk associated with a non-compliance to the TCB can be eliminated[11] through the implementation of controls. An ESF MCRI that is based on the implementation of risk controls can only be agreed if those controls are implemented in a DASA approved document, such as the TCDS, Military Air Operator – Operations Specification (MAO OpSpec), or the DASA-approved areas of the Aircraft Flight Manual (AFM). Controls implemented solely through Flying Orders or Standing Instructions are not sufficient to enable an ESF MCRI to be approved, as they could be removed without DASA or MTCH knowledge, thus invalidating the ESF justification[12].

(z) 26. Operator agreement is required where an MCRI justification relies on the implementation of 'operational' controls, to demonstrate that the controls are acceptable from an operational perspective and able to be implemented safely. This Operator agreement may be documented in an AwIP (especially if there are a number of Exceptions related to the same design change that are already being covered by an AwIP), but can equally be documented in a suitable alternative format. Operator agreement cannot be achieved through the MCRI itself, as the MCRI is an agreement between the applicant (ie project office or MTCH) and DASA, and the Operator is not a signatory. Where an AwIP or alternative risk

Superseded

management documentation is used to support an ESF MCRI, it can only be utilised to demonstrate Operator agreement to the implementation of controls, it cannot be used to imply 'agreement' to the ESF claim (by DASA or the Operator). The ESF claim must be entirely established and agreed within the MCRI, without reliance on other documents.

TCB Tailoring Process

(aa) TCB tailoring (either with an MCRI or without) must be agreed prior to submitting a declaration of compliance for the relevant certification approval. A declaration of compliance must be made against the approved TCB, therefore if there is outstanding tailoring that has not yet been agreed, compliance cannot be declared. The following flowcharts show the process for gaining agreement to TCB tailoring either with or without an MCRI.

Superseded

Annex B - Leveraging Prior Certification

Introduction

DASR 21.A.20 enables an applicant for a certification authorisation[1] to leverage prior certification from a recognised Civilian Aviation Authority (CAA) / Military Aviation Authority (MAA) to gain relief from developing compliance demonstration evidence. This Annex provides guidance on the requirements associated with leveraging prior certification, and what to do if the prior certification can only be partially leveraged.

Outcomes of Leveraging Prior Certification

(b) Leveraging prior certification provides relief from the requirement to develop compliance demonstration evidence. It does not provide relief from any other requirements for certification prescribed in the DASRs.

(c) As such, applicants seeking to leverage prior certification must still do the following:

1. Develop a certification programme that provides the information required in the relevant DASR.

   Note: for certain major changes, this certification programme may be provided in conjunction with the Form 31a, as outlined in Section 7.2.3.

2. Provide a proposed TCB. For a major change this will include identifying the specific airworthiness requirements (termed re-investigations under DASR 21.A.93)[2] impacted by the change.

3. Provide a declaration of compliance.

(d) While use of prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to Original Equipment Manufacturer (OEM) data, this will be negotiated between the Applicant and DASA on a case-by-case basis.

Requirements for Leveraging Prior Certification

(e) In order to leverage prior certification, the following is required:

1. Evidence of certification from a recognised CAA/MAA[3] (e.g. an authorisation issued by the CAA/MAA).

2. Confirmation that the certification is within the scope, conditions and caveats of the relevant CAA/MAA recognition certificate. This will commonly require the following:

   i. Scope: Whether the evidence of certification matches the recognised authorisations on the recognition certificate.

Superseded

ii. Caveats: That evidence exists that the CAA/MAA applied a level of oversight to the design commensurate with the consequences of system failure.

- This is particularly relevant in situations where the CAA/MAA is certifying a design solely for Defence use. In this case there needs to be confirmation that the level of oversight is the same as would normally be used for their own certification activities. Investigation into this aspect should commence as soon as the intent to leverage an CAA/MAA approval that is unique to Defence is known, to avoid any potential delays to progressing the DASA certification.
- If the certification from the other CAA/MAA is a standard certification which has been provided for use in their regulatory system as well as Defence's, stating that in the application is a sufficient response to this caveat.

3. Confirmation that the CAA/MAA is sufficiently experienced in certification of the particular design activity. For example, certification from a civil CAA that relates to safe separation of weapons on a military aircraft is unlikely to be within the experience of the CAA.

4. Identification and management of any deltas between the certification requirements employed by the CAA / MAA and the Defence TCB.

i. **Step 1 – Identification of TCB Deltas.** This requires knowledge of the requirements employed by the other CAA/MAA, and comparison against the Defence TCB. Deltas may include:

- Use of a different airworthiness code.
- Use of later amendments of requirements than the current Defence TCB.
- Not covering requirements that exist in the Defence TCB. This is particularly common for requirements added to the TCB during initial certification as a result of 'Essential' requirements in the Defence Aviation Safety Design Requirements Manual (DASDRM), such as Crash Protection, Oxygen, and Defence Long Range Operations (DLRO) requirements.

ii. **Step 2 – Management of TCB Deltas.** Deltas in the certification requirements employed by the prior certifying CAA/MAA and the Defence TCB can be addressed in the following ways:

- Modification of the design to meet additional Defence TCB requirements.
- Development of additional compliance demonstration evidence to demonstrate compliance to the Defence TCB.
- Tailoring the TCB to match the requirements used by the other CAA/MAA. Depending on the types of deltas in requirements this may require assessment/management of risks associated with use of the different requirements. See Annex A to Section 7 for more information on TCB tailoring.

Superseded

5. Identification and management of any deltas between the Configuration, Role and Environment (CRE) of the prior certification and the intended Defence CRE. Also refer to Annex C to Section 7 for more detailed guidance on the conduct of a CREA Assessment (CREA) in support of leveraging prior certification.

i. **Step 1 – Identification of CRE Deltas.** This step requires the following:

- An understanding of the CRE underpinning the other CAA/MAA certification.
- An understanding of the intended Defence CRE once the authorisation is approved.
- Comparison of the two CREs to identify any deltas. For platforms that regularly rely on prior certification from a specific CAA/MAA, a platform level CREA may be developed (often during initial certification) which documents all known deltas at that time. This can be used as a starting point for future certification activities, where the known deltas in the 'platform' CRE are considered for their impact on the current certification activity. However, the application must still address whether any additional CRE deltas are introduced as a result of the current certification activity.

Note: The CREA is not comparing pre-modification Defence CRE against post-modification Defence CRE. A comparison of pre and post-modification CRE is useful in order to identify impacted areas of the type design, identify required re-investigations and develop a proposed Type Certification Basis (TCB) but does not assist in leveraging prior certification.

ii. **Step 2 – Management of CRE Deltas.** In order to manage any CRE deltas, the requirements of the Type Certification Basis that are impacted by the CRE delta must be identified. Once the impacted requirements are identified, the following options are available:

- Re-design to make the product suitable for the Defence CRE. This will require additional compliance demonstration evidence to demonstrate that the changed design is compliant with the TCB.
- Develop additional compliance demonstration evidence to show that the design is compliant for the Defence CRE.
- Change the Defence CRE to match the CRE from the original CAA/MAA. This may involve modifying the proposed roles or operating environment to remain within the certified role and environments, or choosing not to make Defence unique modifications to the configuration.
- Tailor the requirements of the TCB to account for CRE deltas. This may result in Exception MCRIs, where it is not possible to demonstrate that the design is fully compliant to the TCB for the Defence CRE. See Annex A to Section 7 for more information on TCB tailoring.

Note: It is possible to have a CRE delta that does not impact on the ability to leverage the prior certification. This may be because the CRE delta does not impact on a certification requirement, or because it does not impact on the applicability of the compliance demonstration evidence. If the applicant is

Superseded

claiming that the CRE delta does not impact on the ability to leverage prior certification, the justification for this claim must be clearly provided in the certification programme or final application.

6. Identification and management of any safety risks associated with the CAA / MAA certification.

i. **Step 1 – Identifying Safety Risks**

– Safety risk decisions or risk retention is generally associated with MAA approvals. Civil CAA approvals are not issued on the basis of risk retention, as civil regulators require either that requirements are met directly or that an equivalent level of safety to the requirements has been demonstrated.

– Access to the original authorisation issued by the CAA/MAA may provide insight into risk decisions associated with the approval, but access to System Safety documentation, the Compliance Checklist, or other risk artefacts will likely be required. When engaging in a program that will rely on prior certification from a Military Aviation Authority, it is important to ensure that there is sufficient insight into the supporting documentation to be able to identify any risk underpinning the certification.

Note: Equivalent Level of Safety (ELOS) justifications associated with another CAA/MAA certification may only be true for the certification context in which they were considered. As such, any CRE deltas between the original certified CRE and the Defence CRE may invalidate the ELOS finding and therefore result in an additional safety risk in the Defence context. Careful consideration of the CREA to identify deltas will assist in identifying any additional safety risks introduced due to CRE differences.

ii. **Step 2 – Management of Safety Risks**

– Once risks have been identified, they must be managed through a 7-step risk management process to ensure that they have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE[4]. Claims that the risks were managed and accepted by another MAA is not sufficient, as most MAA do not use the 'SFARP' methodology required by Defence, and the risk management will not be contextualised for the Defence CRE.

– Any safety risks which are the result of non-compliance with the TCB will require an Exception MCRI to be raised, after the risk management has been completed. See Annex A to Section 7 for more information.

Note: Any risk management must be finalised and MCRIs approved prior to completing a declaration of compliance and seeking an authorisation from DASA.

Superseded

(f) Applicants may encounter a range of issues when intending to leverage prior certification that mean that the above requirements cannot be met. This does not necessarily mean that the prior certification cannot be leveraged, but further justification will be required to support the use of that prior certification. Where issues are encountered, the issue and proposed solutions should be outlined in the Certification Programme, and presented to DASA at the earliest opportunity to enable agreement on the proposed approach and reduce risks to the program.

(g) Common issues encountered:

1. **Lack of insight into TCB/re-investigations used by other CAA/MAA.** This is common for aircraft leveraging civil certification, particularly service bulletins, where the design detail is not available.

i. Insight into the TCB/re-investigations is required for the following reasons:

– To confirm that the certification matches the Defence TCB. ie to confirm that no risk is introduced as a result of using older requirements or due to requirements in the Defence TCB not being addressed.

To establish the current TCB of the design, as a starting point for future design activities, to ensure that the level of safety does not diminish with future designs.

Alternate way of addressing this requirement:

– Confirming the known certification basis underpinning the other CAA/MAA certificate. ie it may not be possible to confirm the specific requirements used for the current design, but the baseline certification basis, which would serve as a starting point for the certification activity, will be available on the original Type Certificate.

Identifying any deltas between the baseline CAA/MAA certification basis and the Defence TCB. If the two are largely common (ie airworthiness code and amendment level is common), with any deltas clearly in an area not impacted by the change, this may support proceeding with limited insight into the requirements used by the CAA/MAA for the change. If the baseline TCBs are not common (ie differing airworthiness codes or amendment levels are used) then further insight into the CAA/MAA basis for the change must be obtained.

Confirming the process used by the CAA/MAA in managing the certification basis for changes. In most cases the CAA/MAA will not change the airworthiness code, or add new Special Condition requirements without amendment the original certificate, and in such cases the potential changes to the certification basis would usually be limited to the use of later amendments of requirements, or equivalent level of safety arguments.

Confirming that there is no intent for future design changes to be implemented without reliance on the CAA/MAA in question. If all future changes are intended to leverage prior certification from the CAA/MAA in question, then confidence can be gained that any changes to the TCB related to this certification (eg decisions to comply with later amendments of requirements) will be carried over to any future design changes. However, if it is likely that Defence will undertake Defence unique modifications, or will rely on modification with prior certification from a different CAA/MAA, then

Superseded

detailed insight into the requirements for the change will likely be required in order to establish the basis for future changes.

Note: This alternate approach will generally only be suitable for simple civil certified changes such as major changes released under a Service Bulletin, where the Defence type has minimal CRE deltas from the civil type. Due to the potential for Military certifications to include risk retention, as discussed above, lack of insight into the requirements and level of compliance against those requirements is unlikely to be able to be justified.

2. **Prior certification is against different airworthiness code/requirements than the Defence TCB.** This may happen when Defence relies on certification from a single CAA/MAA and they have decided that due to issues in the original certification basis, or safety benefits available in a new airworthiness code, to alter their certification basis. This may also happen when Defence relies on prior certification from different Authorities for different activities, and those Authorities use different airworthiness codes. This may be addressed in the following ways:

   i. Use of a Military Supplemental Type Certificate (MSTC) to cover the specific design activity that uses a different certification basis. This approach is suitable where there is single stand-alone activity which will use the new certification basis, and other future activities are expected to continue to use the original certification basis. Use of an MSTC enables a TCB to be defined separately to the MTC TCB, though the certification programme will need to address the congruence between the two TCBs to ensure there are no safety risks introduced due to the use of the alternate TCB.

   ii. Modifying the Defence TCB to match the prior certification. This could involve modifying only some elements of the TCB, or could involve a change to the whole TCB. See Annex A to Section 7 for more information.

   iii. Mapping the evidence from the other CAA/MAA across to the Defence TCB without modifying the TCB. This will require a good understanding of differences between the airworthiness codes or requirements and insight into the specific elements of the code impacted by the change. Where there are shortfalls in the ability to map the evidence to the Defence TCB this will require management via additional evidence, limitations or TCB tailoring.

3. **Direct evidence of CAA/MAA approval is not available.** This may occur where Defence receives the output from the OEM (for example a Service Bulletin or updated Aircraft Flight Manual (AFM)) but does not have access to the underpinning CAA/MAA approval.

   i. Direct evidence of approval is required for the following reasons:

      – To confirm that the recognised CAA/MAA has provided an approval.

      – To confirm that the type of approval from the CAA/MAA matches the products on the DASA recognition certificate.

      – To confirm that there were no caveats, conditions or limitations associated with the approval.

   ii. Alternate way of addressing this requirement:

Superseded

- Providing evidence that shows a product has been released under privilege based on an approval from the CAA/MAA. This will often be stated on the product (for example a service bulletin issued under the EASA system will often reference the underpinning EASA approval).
- Confirming that this is a standard type of product under the CAA/MAA system, and therefore would have been approved using a standard authorisation covered under our recognition certificate. The type of approval may actually be referenced on the product (eg Service Bulletin or AFM update) that has been released, therefore addressing this requirement.
- Addressing the potential for conditions, caveats or limitations associated with the product. This may require engaging with the organisation that has released the product (eg OEM) to confirm whether any conditions, caveats or limitations were associated with the approval. Normally conditions or limitations associated with an approval would be released to Operators, and therefore be available even if the underpinning design approval is not available.

Note: This alternate approach will generally only be suitable for simple civil certified changes. Due to the potential for Military certifications to include risk retention, as discussed above, lack of direct evidence of MAA approval to enable assessment of potential risk treatment decisions is unlikely to be able to be justified.

4. **Evidence of CAA/MAA approval does not match the recognition certificate.** This may occur where the CAA/MAA uses a different system for approval of certain artefacts that is not covered under the recognition certificate. For example, the Federal Aviation Authority (FAA) approval of changes to a Master Minimum Equipment List (MMEL) is managed through the Flight Operations Evaluation Board process and may not receive a major change approval as listed on the recognition certificate.

   i. Alternate way of addressing this requirement:

   - Provide information on the type of approval that was provided, the area of the CAA/MAA that provided it (especially if it is a separate element of the CAA/MAA than normally completes certification activities), and why this approval was not provided under one of the standard/recognised authorisations.
   - Provide justification (based on the above factors) for why this available authorisation should be considered equivalent to other recognised authorisations. For example, it is the standard process used for this technology area, it has undergone the same level of oversight from an appropriate area of the Authority, it has been approved as a 'major' change which is equivalent to the classification under DASRs.

5. **Prior certification is from a CAA/MAA that DASA does not recognise or is not covered by the DASA recognition.** This could be due to three reasons – the certification is from a historical CAA/MAA that no longer exists, the certification is from a current CAA/MAA that DASA has not assessed, or the certification is from a recognised CAA/MAA but not covered by the current recognition. In any of these cases, early engagement with DASA to discuss the potential for leveraging a

Superseded

certification from an unrecognised CAA/MAA is essential. For current CAA/MAAs, DASA may be able to undertake the recognition activities to support the use of prior certification, but this will require sufficient notice.

i. Historical CAA/MAA.

- Recognition of current CAA/MAAs does not cover any previous variations of the Authority. As such, additional work will be required to establish confidence that the historical CAA/MAA processes provided an equivalent safety outcome to the DASRs, before the certification can be leveraged. In order to do this, the applicant must gain as much insight as possible into the authorisation that they are intending to leverage and the system under which it was issued, and engage with DASA early to determine possible approaches to recognition.
- Use of a certification from a historical CAA/MAA is also likely to be provided against older airworthiness requirements than would be currently required under the DASRs. As such, assessment and treatment of any risks relating to the deltas between the older requirements and the contemporary requirements will likely be required in order to leverage the prior certification.

ii. Current CAA/MAA (unrecognised or not covered by the current recognition)

- DASA should be engaged as early as possible if there is an intent to leverage certification from a current CAA/MAA that is not recognised. In order to be able to leverage that certification, DASA would need to undertake a recognition activity which will require significant notice and planning. If DASA is unable to conduct a recognition activity of the CAA/MAA, prior certification will not be able to be leveraged and a standard certification approach must be followed, including presentation of all compliance demonstration evidence to DASA.

6. **Insufficient insight into the level of oversight provided by the other CAA/MAA**

i. As mentioned above, if the design is being certified for use within the other CAA/MAA's system then that is normally sufficient to confirm an appropriate level of oversight has been provided. If the design is being certified solely for Defence use, then insight into the CAA/MAA oversight is required, and applicants should establish a plan for gaining this insight as early as possible.

ii. If the applicant has exhausted all options available to them for gaining this insight, then DASA may be able to engage on an Authority-to-Authority level to address this requirement. Note that this is not a standard practice, and will only be done in exceptional circumstances. The Authority-to-Authority engagement may not be able to occur on applicant timelines and, as such, if an applicant is reliant on this approach then it may result in delays to certification.

Superseded

Annex C - CRE Assessments in Support of Aircraft Certification Programs

Introduction

(a) DASR 21.A.20 requires the applicant for a Military Type Certificate (MTC) to demonstrate compliance with the applicable Type Certification Basis (TCB), and to provide the Authority with the means by which such compliance has been demonstrated. The Acceptable Means of Compliance (AMC) accompanying this regulation requires the applicant to demonstrate compliance through either:

1. Compliance Demonstration Evidence (CDE) developed by a Military Design Organisation Approval (MDOA) holder (or alternative as agreed by the Authority); or

2. appropriate evidence of prior certification provided by a recognised Civilian Aviation Authority (CAA) or Military Aviation Authority (MAA) - collectively C/MAAs.

(b) The latter of these two demonstration methods recognises that most Defence aircraft and design changes have previously been assessed as suitably safe ('certified[1]') by another C/MAA. It therefore makes sense for Defence to leverage that effort to the maximum practicable extent. Apart from the obvious direct benefits to Defence (eg savings in time, cost and effort through not producing or assessing CDE), it also presents opportunities for Defence to benefit from international C/MAA expertise and privileged access to design data.

(c) However, the certification issued by an C/MAA is normally specific to their local operational context. Defence has long described this context in terms of the aircraft's 'CRE', that is, its:

1. Configuration - the physical and functional attributes of the aircraft

2. Role - the way the aircraft is flown and employed

3. Environment - the physical and functional conditions in which the aircraft is operated.

(d) Defence has historically found that its operational context can differ markedly to other civil and military operators, and therefore C/MAA certifications may be only partly relevant to Defence aircraft. This may affect the extent to which an applicant can rely on prior certification - and instead must develop CDE to demonstrate compliance with the TCB.

(e) **Purpose of Annex.** The aim of this Annex is to assist applicants for MTCs and Major design change approvals in identifying opportunities to leverage prior certification, thereby obtaining partial or full relief from developing CDE. This Annex supports the guidance contained in Section 7.2 *Type Certification*, and is complemented by Annex B to Section 7 *Leveraging Prior Certification*.

(f) While not the direct audience for this Annex, the content may also assist organisations managing the acquisition of, and design changes to, Defence aircraft in meeting their Smart Buyer and other obligations.

(g) **Overview of Annex.** This Annex briefly summarises the concept of prior certification and its applicability to Defence aircraft acquisitions and Major design changes. It will then provide guidance on completing a CRE Assessment (CREA) to justify an application to leverage prior certification.

Superseded

(h) Finally, it will briefly explain how some minor adaptions to the CREA process can assist Defence in its Smart Buyer and other endeavours.

Prior Certification

(i) This Annex assumes the reader has a reasonable knowledge of prior certification, as provided through Annex B to Section 7 *Leveraging Prior Certification*, the DASR Type Certification Course, and AMC/GM to DASR 21.A.20. However, to ensure readers share a common context for the next section on CREA, a brief overview is provided below.

(j) To promote efficiency and flexibility in the DASP, DASA may acknowledge that products and services from other Aviation Authorities and their respective systems are acceptable. This concept, known as Recognition, is provided for by the Defence Aviation Safety Regulation and is explored in Section 6 *Recognition of other Aviation Authorities*. Recognition is contingent on a DASA assessment of, amongst other things, the C/MAA's staffing (including qualifications and training), airworthiness regulations, policies applied by the Authority, and the airworthiness authorisations issued by the Authority.

(k) In the context of aircraft design, prior certification of a product - whether a whole aircraft, a system, an item of equipment or even a software load - by a recognised C/MAA can provide Defence with equivalent confidence in the safety of design as if we had conducted the product certification ourselves. This presents the applicant for an airworthiness authorisation with the opportunity to reduce, or perhaps even eliminate, the need to develop CDE to demonstrate that the design meets the agreed TCB.

(l) Prior certification can only be applied to the extent that the following prerequisites are met:

1. the certification is within the scope, conditions and caveats specific to DASA's recognition of the certifying C/MAA
2. the C/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the C/MAA (primarily related to disclosure of the TCB) are understood
4. any safety risks associated with the C/MAA certification have been identified, and Defence has ensured those risks have been eliminated or otherwise minimised so far as is reasonably practicable
5. the Configuration, Role and Environment (CRE) applied to the C/MAA's certification is understood and any deltas from the intended Defence CRE have been addressed.

(m) The first four of these prerequisites, while sometimes challenging to verify, are largely self-explanatory. However, the fifth prerequisite, namely identifying and managing CRE deltas, is often a complex undertaking and is the subject of the remainder of this Annex.

Configuration, Role and Environment

(n) This section introduces the concept of 'CRE', and then explores the differences between the as-designed CRE, the as-certified CRE, and Defence's required CRE.

What is CRE ?

Superseded

(o) An aircraft operator, whether civil or military, will have a particular operational context in mind when procuring an aircraft. An aircraft design organisation will similarly have a particular operational context in mind when designing an aircraft. Alignment between these two contexts is unsurprisingly pivotal to airworthiness.

(p) Since there is no internationally-accepted terminology for this operational context, Defence has historically defined it in terms of an aircraft's Configuration, Role and Environment. The following paragraphs provide an overview of the factors that constitute an aircraft's CRE:

1. **Configuration.** An aircraft's Configuration comprises all its physical and functional attributes. It includes, amongst other things, the attributes of aircraft systems (eg avionics, fuel, oxygen, flight controls), structures (eg wings, doors, nacelle), powerplant (eg fuel, engine, exhaust), and propellers and rotors[2].

2. **Role.** An aircraft's Role encompasses how it is flown and employed. It includes flight profiles, external stores carriage, possible cargo configurations, operating weights, speed/altitude ranges, and so on. The desired Role for an aircraft often influences its Configuration and Environment.

3. **Environment.** An aircraft's operating Environment encompasses the physical and functional conditions in which the aircraft is operated. It includes:

   i. the physical airborne environment (for example the electromagnetic environment, the corrosive environment, moisture and gust loads)

   ii. the physical ground environment (for example landing loads, taxi loads, tie-down loads and so on)

   iii. the functional environment (for example national airspace equipage and navigation performance requirements)

   iv. Australian and Defence policies, procedures and equipment requirements (for example Australia has legislated requirements for safety risk management, Defence has specific policy requirements for aircraft crash protection).

(q) The Role and Environment for a particular aircraft will usually remain fairly constant throughout its life. Changes to Configuration, on the other hand, are commonplace - usually to introduce new functionality or to remedy latent design/construction deficiencies.

(r) While the vernacular of 'CRE' is probably unique to Defence, the underlying principles are common across civil and military aviation.

The 'as designed' CRE

(s) As noted previously, aircraft designers will have a particular operational context in mind when designing a new aircraft or a change to an aircraft. For military aircraft, this is usually defined by the lead military customer, as documented in their procurement specification. For civil aircraft, this is often defined by the design company itself, after identifying the likely needs of prospective customers.

(t) In both cases the final design will often exceed the customers' requirements. This might be in anticipation of future customer needs, or because off-the-shelf components exceed requirements, or to incorporate generous safety margins for design/production inaccuracies.

Superseded

(u) From a customer's perspective, identifying an aircraft's Configuration is usually straightforward. However, identifying the Role and Environment assumed by the designer can be particularly difficult. In DASA's experience, this is partly because designers do not explicitly employ this terminology or construct, and partly due to commercial/security considerations. Avenues to overcome these hurdles are presented later in this Annex.

The 'as certified' CRE

(v) CAAs will normally certify a new aircraft against their promulgated airworthiness codes[6]. These airworthiness codes, inclusive of their referenced standards, implicitly include bounds on the aircraft's Role and Environment. These bounds are reflective of the common operational context that the authors had in mind when they drafted those airworthiness codes and standards.

(w) The concept of a unique and explicit Role and Environment is therefore irrelevant to most CAA certifications[4]. Consequently, if Defence wishes to identify the certified Role and Environment, it is usually sufficient to explore the relevant airworthiness code and its referenced standards. This may sometimes be straightforward (eg identifying the certification limits for electromagnetic immunity), but more often it requires deep domain knowledge (eg limits for repeated engine dust ingestion).

(x) MAAs, on the other hand, will normally certify an aircraft against its intended operational context. They may use a standards-based approach, or a specification-based approach, or more commonly a combination of both. Because of the often unique and challenging operational context for military aircraft, MAAs will ultimately certify to the intended Role and Environment, albeit that terminology is rarely used outside Defence.

(y) If Defence wishes to identify the MAA-certified Role and Environment, much of the information should be available in the original aircraft procurement specification . The remaining information can normally be sought directly from the MAA, through targeted requests for certification data. Where the MAA is unable to release that information, an alternate approach may be to seek MAA confirmation that the certified design does indeed meet a particular Defence Role or Environment requirement. A final approach, albeit much less-preferred, is to explore whether the MAA's indigenous aircraft operate to a similar extreme of Role or Environment .

(z) Importantly, neither a CAA nor MAA certification will precisely match the as-designed Role and Environment. Rather, the latter will invariably exceed the former. The C/MAA merely confirms that their requirements are met, whereas the designer may elect to exceed those requirements for their own reasons. The significance of this delta will become clear later in this Annex.

Defence's required CRE

(aa) Defence procures aircraft to meet its operational needs. However, with a few rare exceptions, Defence's intended CRE for a new aircraft will be different to other major operators of the same aircraft type. This is due to Australia's unique location and environment, the need to multi-role our aircraft fleet, and so on.

(ab) DASR ARO.50 requires all Defence-registered aircraft to be issued with a Statement of Operating Intent and Usage (SOIU). Ideally, the SOIU should form a cornerstone of the aircraft Type Certification process, since it should contain all the Roles and Environments in which the aircraft type is intended to operate[7]. Practically, however, there is still variability across

Superseded

aircraft SOIUs, so Defence acquisition and design staff may also need to glean additional information from other sources[8].

(ac) The next section explores how Defence certification programs may still be able to leverage prior certification, despite apparent differences between Defence's required CRE and the as-certified CRE, through a CRE Assessment.

CRE Assessment - New Defence Aircraft

(ad) The applicant for a MTC for a new Defence aircraft is required to develop a certification programme (which should be presented as a stand-alone Certification Programme Plan (CPP)) for Authority acceptance. A central element of the CPP is the TCB for the aircraft and the proposed means of demonstrating compliance with the TCB. Both are commonly combined into a Compliance Checklist (CCL).

(ae) Unsurprisingly, applicants endeavour to leverage prior certification to the maximum practicable extent, rather than develop additional CDE. The onus is on the applicant to compare Defence's CRE with the prior certified CRE, and draw one of three conclusions for every TCB line item:

1. There is no CRE delta, so prior certification can be fully claimed for that TCB line item
2. There is a CRE delta, but it only affects certain elements of the TCB line item, so CDE will be developed to supplement the prior certification.
3. There is a marked CRE delta, so CDE will be developed to fully demonstrate compliance (ie prior certification will not be used)

Note: *Before starting to develop CDE, some CASG Project offices attempt to eliminate or minimise CRE deltas through various means, for example negotiating role/ environment changes with aircraft operators. However, this is not a certification activity - rather it is a CASG Smart Buyer activity that endeavours to reduce certification costs and schedule. See Section 7 for further information.*

(af) Most applicants elect to produce a CRE Assessment report to summarise and justify their findings. However, this is not a regulatory requirement. Rather, the applicant must ultimately find a way to satisfy the Authority that each instance of leveraging 'prior certification' is justified before the Authority will agree to the CPP. The applicant will also need to define the additional CDE that will be developed, where full reliance on 'prior certification' cannot be supported.

CRE Assessment process

(ag) A template for conducting a CRE Assessment is provided at Appendix 1 to this Annex. At its core is a list of items where Defence has historically encountered CRE deltas to certified designs. Each line provides space for the applicant to decide whether the item is relevant to their situation, and if so to list potentially affected TCB elements.

(ah) The common CRE Assessment process is presented in steps 1 to 4 of the figure below. Steps 5 to 8 are normal design actions that are beyond the scope of this Annex, but are included for completeness.

Superseded

Figure 1: Common CRE Assessment Process

Note: *While the TCB is first mentioned at Step 4, the TCB would preferably be developed well before this, to help inform each step in the CRE assessment.*

(ai) Guidance in completing Steps 1 to 4 is presented in the following paragraphs. Guidance on completing the green Smart Buyer step is included later in this Annex.

Step 1: Document the Defence CRE

(aj) Paragraph 28 noted that the SOIU should contain a comprehensive description of Defence's Role and Environment, but did not provide guidance on what might be considered 'comprehensive'. While the determination of comprehensiveness is guided by AMC to DASR 21.A.15(b), and also the SOIU, CREA and CPP templates, it ultimately is a judgement made by competent engineers.

(ak) Importantly, this step must identify any areas where Defence's Role and Environment for the aircraft could conceivably be unusual, and then document Defence's requirements for those areas. Conversely, as a matter of pragmatism, other areas may be omitted simply because

Superseded

Defence's intended use for the aircraft is so obviously unremarkable[9]. The ideal balance is where we do not drown in detail, but we also do not miss any potential deltas.

(al) The two preceding paragraphs have focused on Role and Environment, but not Configuration. This is because Configuration differences are usually identified directly in Step 3.

Step 2: Determine the CRE that was employed by the certifying C/MAA

(am) Refer to the 'as-certified' CRE information earlier in this Annex for guidance on identifying and exploring the CRE employed by the certifying C/MAA.

Step 3: Compare the CREs and identify deltas

(an) **Role and Environment.** While identifying Role and Environment deltas is conceptually straightforward, it can often be complex in practice. In DASA's experience it takes professional engineering effort, and there are few if any shortcuts.

(ao) DASA offers the following guidance:

1. The CRE assessment is usually most effective when conducted in two phases. The first phase evaluates each line item in the Appendix 1 template, with the sole aim of identifying issues that might present a CRE delta. The second phase methodically explores each item to confirm that status.

2. In DASA's experience the first phase is best conducted as a workshop, comprising experienced representatives from the Military Air Operator (MAO), Air Warfare Centre, DASA, CASG, and other relevant domain experts. The second phase is normally a project office activity.

3. The second phase should avoid delving too deeply into issues that may only have a trivial safety effect. Defence has limited resources, and must focus its effort on identifying and managing sources of elevated safety risk.

4. It can be tempting during this step to source additional evidence from the aircraft designer to confirm the as-designed aircraft does in fact encompass Defence's Role and Environment, even though the as-certified aircraft does not. However, this approach can muddy the application of prior certification. Rather, the additional evidence is best identified and sourced in Step 5 of the CRE assessment process.

5. This step is complete only when Defence has certainty over CRE deltas. If Defence only suspects there is a CRE delta, then further authoritative data should be sought. Proceeding to Step 4 prior to this certainty can lead to Defence wasting resources by implementing unnecessary modifications or generating superfluous CDE.

(ap) Conversely, based on previous DASA experience, DASA offers the following cautions:

1. The CRE comparison activity should not be levied onto a foreign C/MAA or foreign program office or aircraft designer, because it will almost certainly be unsuccessful[10]. At most, Defence should present targeted questions to the C/MAA on elements of CRE.

2. The activity should not be completed in isolation by engineers. Some CRE deltas can be obscure, and are only revealed after deeper exploration by operational and other stakeholders.

Superseded

3. The methodical CRE exploration should not be relegated to an inexperienced project engineer or contractor. Identifying and managing CRE deltas can be a substantial contributor to safety, and needs to be tackled with commensurate skill and diligence.

(aq) **Configuration.** Identifying Configuration deltas is usually straightforward. Configuration deltas commonly result from either a unique Defence capability requirement, or are a security pre-requisite of the originating customer[11].

Step 4: Explore the effect a CRE delta will have on TCB line items

(ar) As described in paragraph 31, prior certification can only be leveraged for a particular TCB item to the extent that the certification is relevant to Defence's particular CRE. Otherwise, the applicant would normally need to develop CDE to cover the gap[12].

(as) **Role and Environment.** This step methodically identifies every TCB line item that will be affected by a particular Role and Environment delta. For example, if Step 3 concludes that Defence will conduct higher sink rate landings than the C/MAA certification currently covers, the analyst must identify every affected TCB item. These will range from the obvious (eg TCB items covering undercarriage strength) to the obscure (eg TCB items covering ICA for crash-rated seats).

(at) The engineers completing this process must have a deep understanding not only of each TCB item, but also the standards that underpin each TCB item. Most often, this depth of knowledge will only be resident in a DASA-approved Military Design Organisation (MDO), although there is no regulatory requirement for an MDO to complete this step.

(au) Completion of this step will ideally result in two artefacts, although only the latter is a prerequisite for proceeding to Step 5:

1. A CREA report, usually based on the template at Appendix 1, which documents the affected TCB line items for every identified CRE delta. This can be a particularly useful artefact for through-life support, as will become evident in Section 6.

2. A Compliance Checklist (CCL) which lists every TCB line item and identifies where 'prior certification' will contribute partly or fully to demonstrating compliance.

(av) **Configuration.** Where a Configuration delta exists, the outcome is usually unambiguous. That is, relief through prior certification usually cannot be applied, so new CDE must be developed to support Type Certification of those systems or equipment. This activity will be performed by a MDO or other organisation accepted by the Authority. The template at Appendix 1 is not normally used for Configuration deltas; rather they are addressed directly in the CPP.

(aw) DASR 21.A.97 states that the approval of a Major design change requires compliance to be demonstrated with the Authority-approved TCB. Since Defence mostly procures off-the-shelf designs that have been certified by a recognised C/MAA, leveraging 'prior certification' has the potential to markedly reduce the CDE to be developed by design organisations.

(ax) This section examines the role of CRE assessments in certifying design changes, and separately covers:

Superseded

1. Major design changes[13] to Defence aircraft that possess a quality CREA that has been well documented and iteratively improved over time

2. Major design changes to Defence aircraft that do not possess a quality CREA

3. Minor design changes to Defence aircraft

Major design changes - for aircraft with a quality CREA

(ay) An existing CREA is primarily useful where the C/MAA certification basis for the Major design change is largely equivalent to the Defence TCB, and the change does not introduce a marked change to the Defence SOIU (and, therefore, the CRE which underpinned the original CREA). Where these assumptions do not hold, a new CREA will probably be needed (see paragraph 55).

(az) Extant CREAs are usually used in one of two ways. The most common is for straightforward design changes where 'prior certification' is reasonably expected to entirely support Defence's own certification (ie no new CDE should be required). In this case, a two-step approach is normally applied by the applicant:

1. **Step 1:** Use the CREA to confirm the particular aircraft systems/functions relevant to the change are not affected by Defence's unique Role and Environment.

2. **Step 2:** Confirm the design change does not introduce any new Role and Environment deltas[14].

3. Provided both steps are positively confirmed, and Defence's aircraft configuration matches the C/MAA-certified configuration, then the applicant should be justified in claiming full relief from developing CDE.

(ba) A variation on the above approach is where the CREA is used to identify where partial 'prior certification' might be applied. For example, the design organisation might create the CCL for a design change, and then use the CREA to identify CCL line items that were noted as being affected by Defence's unique Role and Environment. The CREA would then help the applicant determine whether the particular Role and operating Environment attribute was relevant to this particular design change.

(bb) **CREA maintenance.** For a CREA to be used per paragraphs 51 to 53, the CREA must be maintained throughout the aircraft's lifecycle. This includes not only adding CREA items as new deltas are identified, but also amending items where the CRE delta is reduced or no longer exists (eg if a design change eliminates a CRE delta, or the C/MAA changes what they are certifying to).

Major design changes - for aircraft lacking a quality CREA

(bc) Where a quality CREA does not yet exist for the aircraft, an applicant wishing to leverage 'prior certification' will need to apply the process in Section 5, covering the scope of the particular design change.

Minor design changes

(bd) DASA issues Recognition certificates for recognised C/MAAs, which are available on the DASA recognition web page. These certificates, and DASR M.A.304(d), allow Continuing Airworthiness Management Organisations (CAMOs) to directly consume certain Minor design changes, provided the resulting design change is compatible with Defence's CRE. AMC to

Superseded

DASR M.A.304(d) requires the CAMO to establish procedures to assess and process data intended for consumption. A starting point for these procedures would be the guidance presented above at paragraphs 51 to 53.

(be) For Minor design changes that cannot be consumed under M.A.304(d), for reasons including CRE deltas, an approval under DASR 21 is required. The Initial Airworthiness DASRs do not specifically mention prior certification in relation to 'Minor' design changes. However, a MDO's Design Organisation Handbook must describe how their design assurance system accounts for the acceptability of the parts or appliances designed by partners or subcontractors. Where these parties are not MDOs, the application of 'prior certification' (including CRE assessments per paragraph 55) may contribute to a pragmatic solution.

CRE Assessments - Contribution to Smart Buyer

(bf) This Annex has naturally focused on the direct contributions that CREAs make to aircraft type certification. This last section is presented as a service to CASG, exploring some ways that CRE assessments can contribute to CASG's cost, schedule and capability aims.

Minimising CRE deltas

(bg) DASA has long advised aircraft acquisition project offices to conduct CRE assessments early in the project lifecycle, well before acquisition contracts are signed. By identifying potential CRE deltas early, CASG can explore a wider array of options for minimising the deltas, resulting in potential cost, schedule and capability benefits. For example, upon identifying a potential CRE delta, CASG might:

1. expand the acquisition contract to modify the aircraft so it fully meets Defence's required Role and Environment
2. include requirements in the contract for the aircraft designer or C/MAA to develop or disclose CDE that shows the design already encompasses Defence's needs
3. allocate project funding to develop additional evidence to confirm the aircraft exceeds designer or C/MAA expectations (eg fund structural fatigue tests or targeted EMI testing)
4. seek MAO concurrence with operational limitations or changes to the SOIU, to eliminate or minimise CRE deltas
5. make provision for expanded Instructions for Continuing Airworthiness (eg add inspections or maintenance) so the design remains safe for the proposed Defence use.

(bh) While each of these avenues can be pursued after contract signature, they can become markedly more difficult and expensive. If left too late, opportunities to eliminate a CRE delta might become impractical, potentially obliging a MAO to accept a capability reduction or to retain an elevated level of risk.

Other uses for CRE assessments

(bi) CASG projects have previously found CRE assessments to be useful for issues beyond type certification. One such use is to identify areas where a new aircraft and its support systems

Superseded

may not be entirely compatible with Defence's systems and legal obligations. Once identified, the project can work through resolving the incompatibilities. Candidates might include:

1. aeronautical data
2. electronic flight bags
3. mission planning systems
4. compatibility of aircraft operating and maintenance procedures and publications with Defence's standard training and doctrine
5. compatibility with night vision lighting systems, on the ground or on other aircraft
6. long-term health effects due to RADHAZ, HAZCHEM, etc
7. airfield limitations
8. compatibility with Defence's common ground support equipment
9. extended operation of aircraft systems on the ground.

Superseded

(a) This Appendix presents a template for methodically identifying and exploring deltas between the as-certified CRE and Defence's required CRE, to justify relief from presenting Compliance Demonstration Evidence due to a prior certification from another C/MAA. The list has been compiled through DASA and CASG experience with many previous aircraft acquisitions.

(b) A link to the current CRE Assessment Template can be found on the DASA website.

(c) When employing the above template, it can be useful to understand the common causes of Role and Environment deltas.

(d) **Role.** Role deltas may be caused, or exacerbated, due to:

1. increased frequency of particular types of missions or the missions may be carried out substantially differently, leading to accelerated fatigue and lifing issues
2. a system was intended for primarily training roles, but will now be used for an operational role
3. a system was not designed for the increased frequency of particular training serials (e.g. landings, stalls, etc.)
4. some aerobatic or other aggressive manoeuvres may not have formed part of the design basis or operating intent when considered by the original certification authority
5. systems which were designed to be advisory only, or to support a mission outcome, are now to be relied upon as a safety critical system.

(e) Table 1 presents a tool for broadly identifying role deltas, which may assist in completing the attached template.

Superseded

Table 1: Comparison of SOIU and Original Certified Roles

(f) Operating Environment deltas may be caused, or exacerbated, due to:

1. harsh extremes of the Australian environment
2. unique Australian legislated or Defence policy requirements specified within DASR, the Defence Aviation Safety Design Requirements Manual (DASDRM) and other Defence Policies
3. unique Defence crewing or crew skill requirements
4. differences between communication and navigation system requirements of nations
5. unique Defence roles for the aircraft, beyond those considered by the certifying authority.

Superseded

Annex D - Repair Design Approval Scenarios

Introduction

(a) This Annex provides examples of approval processes for repairs IAW DASR 21 Subpart M, with a focus on major repairs. Within the Defence context there are a number of scenarios that are applicable for different repair development circumstances. These scenarios are defined herein as an aid for explanation, rather than as a series of strict application processes. This Annex contains detailed guidance, and highlights how processes vary, for the following scenarios:

1. Scenario 1 – Major Repair developed by an organisation holding an approval under DASR 21 Subpart J, and approved by DASA. An application for DASA approval of a major repair processed by an organisation holding an approval under DASR 21 Subpart J.

2. Scenario 2 – Major Repair approved by an organisation holding an approval under DASR 21 Subpart J with major repair privileges. The process by which an organisation holding an approval under DASR 21 Subpart J, and holding the privilege to approve certain major repairs, may approve a major repair design.

3. Scenario 3 – Major Repair which has not been approved by a CAA/MAA and which has been developed by an organisation which does not hold an organisational design approval issued by a DASA recognised CAA/MAA. The process by which a major repair developed by an organisation such as OEM, which has not been approved by a recognised CAA/MAA, may be approved.

4. Scenario 4 – Approval of unrepaired damage utilising major repair provisions where compliance can be shown with the Type Certification Basis (TCB). The process by which unrepaired damage[1], which can be shown to be in compliance with the TCB with specific maintenance action (for example with an additional inspection program), is subject to approval via the major repair arrangements of DASR 21.A.435(b). These arrangements are also applicable where an individual aircraft is to be flown beyond an AwL item and where compliance with the risk level inherent in the TCB can be demonstrated. In cases where compliance with the TCB cannot be shown a major repair approval is not an appropriate authorisation[2].

5. Scenario 5 – Staged approval of damage tolerant repairs. The process by which approval of repairs which include fatigue and damage tolerance evaluation, may be staged to allow an operator to return its aircraft to service before all the fatigue and damage tolerance data have been developed and approved. The staged process is not applicable to propulsion systems and dynamic systems for helicopters.

6. Scenario 6 – Approval of new repairs based on pre-approved repairs contained in the type data set. The process by which new repairs are developed based on those contained in the aircraft type repair manual, or based on repairs previously developed for the aircraft type, but outside of the limitations of the existing repair approval, are approved.

7. Scenario 7 – Approval of changes to the approved type design repair data. The process by which changes to approved data for repairs for the platform are approved (typically changes to the aircraft type Structural Repair Manual).

Superseded

(b) As a reminder, CAMOs may be able to directly consume repair data approved by a CAA/MAA recognised by DASA as competent for the approval of major repairs or approved by an organisation privileged by such a CAA/MAA. Refer to the Section 8.2 for further information.

Scenario 1 – Major Repair developed by an organisation holding an approval under DASR 21 Subpart J, and approved by DASA

(c) The process for major repair design development and approval for the case of a major repair developed by an organisation holding an approval under DASR 21 Subpart J and approved by DASA is outlined in Table D.1.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution. A repair is required to eliminate damage and/or restore the aircraft to an airworthy condition. There is no existing solution available and approved that is applicable to the damage in question, and therefore a new repair design is required. Repairs for similar damage that have not been approved for the application or specific aircraft in question are to be treated as a new repair design.	CAMO
Develop Repair Design	A new repair design is developed by a design organisation. DASA may be notified of an upcoming major repair design. This can be accomplished via an optional DASR Form 31 directed to the DASA Type Certification Group mailbox. The requirement for a detailed CP is determined in consultation with DASA. In the case of major repairs, if long and complex compliance demonstration activities are deemed to not be required, the CP can be submitted in simplified form as part of the application (see AMC 21.A.432C(a)). Minimum requirements for a CP are outlined in DASR 21.A.432C(b) and include the purpose and description of the change/repair, applicability, applicable airworthiness requirements, description of the compliance demonstration process (including means of compliance and reference to compliance documents), and where relevant, the schedule for delivery of compliance documents.	Design organisation

Superseded

Repair Classification	Classification of the repair as either major or minor[3] (see DASR 21.A.435a). The classification of repairs is to meet the requirements of DASR 21.A.91 for changes to type certificates. Guidance regarding the classification of repairs is contained in Section 7.2.4. Classification is conducted by DASA or by an organisation holding an approval under DASR 21 Subpart J with a classification privilege under a procedure agreed with DASA[4].	DASA or appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	The applicant shall establish the relevant CB for the repair, demonstrate compliance with the required CB elements, verify compliance and declare compliance. The applicant shall apply for a major repair approval by way of submittal of a DASR Form 31B and declaration of compliance to the DASA Type Certification Group mailbox. The Form 31B contains the MTCH declaration, confirming the organisation holding the MTC will carry out holder obligations related to the major repair. As per DASR 21.A.433(b) the applicant shall allow DASA to review any report, make any inspection and perform or witness any test necessary to check the validity of the submitted compliance statements.	Applicant that meets the eligibility criteria[5]
Repair Approval	Once a repair has been shown to meet the CB and applicable environmental protection requirements, and has been declared as such, DASA will issue a major repair design approval. The approval will be issued to the organisation holding the MTC who gains the obligations of the major repair approval holder IAW DASR 21.A.451.	DASA
Repair Configuration Management	Once the major repair design has been approved by DASA, the data can be used to accomplish the repair on the applicable aircraft (per DASR M.A.304(a)). The CAMO is responsible for managing the accomplishment of modifications and repairs (DASR M.A.708(b)(3)), and maintaining a record of aircraft configuration, which includes the status of modifications and repairs (DASR M.A.305(d)(2)).	CAMO
Production of Repair Parts	Produce repair parts	Appropriately approved production

Superseded

		organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145.
Repair Embodiment	Embody repair	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G.
Ongoing Holder Obligations	The organisation holding the MTC gains the obligations of the major repair approval holder IAW DASR 21.A.451	MTC holder

Table D.1: Detailed process for Scenario 1

Scenario 2 – Major Repair approved by an organisation holding an approval under DASR 21 Subpart J with major repair privileges

In Scenario 2 the organisation holding an approval under DASR 21 Subpart J has the privilege to approve certain major repairs IAW AMC2 21.A.263(c)(5). As part of this privilege, major repair approvals will be conducted under a procedure approved by DASA, which will include steps to ensure the privilege is only exercised when valid (refer Section 7.2.4 for further guidance). In cases where the MDOA cannot approve the specific major repair design under their current privilege they must either seek expansion of their privilege (refer AMC2 21.A.263(c)(5), (8) and (9)), or submit an application for DASA to approve the major repair (as per Scenario 1). The MDOA should also consider a means to provide a list of approved major repairs to DASA during surveillance activities (see AMC2 21.A.263(c)(5), (8) and (9) and GM 21.A.435(b)). The process for major repair approval for scenario 2 is outlined in Table D.2.

Stage	Description	Responsibility

Superseded

Identify and Assess Damage	As per Scenario 1	CAMO
Develop Repair Design	As per Scenario 1	Design organisation
Repair Classification	Classification IAW DASR 21.A.435a conducted by the privileged organisation holding an approval under DASR 21 Subpart J under a procedure agreed with DASA (see DASR 21.A.435(b)2). A procedure agreed by DASA is to be documented in the Handbook.	Appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish if the privilege to approve certain major repairs can be exercised for the specific repair design. If not, apply to DASA to extend the privilege, or follow Scenario 1. If the privilege to approve certain major repair designs can be exercised then the MDOA shall establish the CB, demonstrate compliance with the required CB elements, verify compliance and declare compliance.	Appropriately approved design organisation under a procedure agreed with DASA
Repair Approval	IAW DASR 21.A.435(b)2, once a repair has been shown and declared to meet the CB and applicable environmental requirements, a major repair shall be approved by the privileged organisation holding an approval under DASR 21 Subpart J. The approval procedures are to have been agreed by DASA and documented in the Handbook. In the case where compliance is found with a standard other than that in the TCB, this assessment is considered as interpretation of standards. DASA is the only organisation able to interpret standards[5] and as such approve the repair. In this case Scenario 1 is applicable.	Appropriately approved design organisation under a procedure agreed with DASA
Repair Configuration Management	Once the major repair design has been approved by the design organisation, the data can be used to accomplish the repair on the applicable aircraft (per DASR M.A.304(b)). The CAMO is responsible for	CAMO

Superseded

	managing the accomplishment of modifications and repairs (DASR M.A.708(b)(3)), and maintaining a record of aircraft configuration, which includes the status of modifications and repairs (DASR M.A.305(d)(2)).	
Production of Repair Parts	Produce repair parts	As per Scenario 1
Repair Embodiment	Embody repair	As per Scenario 1
Ongoing Holder Obligations	As per Scenario 1	MTC holder
DASA Review of Approved Repairs	If following the GM 21.A.435(b), consideration should be given to maintaining a summary list of major repair approvals conducted by the privileged organisation holding an approval underDASR 21 Subpart J for review by DASA during surveillance activities. The periodicity of the provision of this summary list is to be as agreed with DASA and documented in the Handbook. This list should provide summary details of the repair approvals including: • title and purpose of design • applicable product and system • amendments to ICA • damage description • damaged part numbers • affected areas • reference to the reporting source • reference to the substantiating data • reference to the assessment of Configuration, Role and Environment (CRE) compatibility • repair description	Appropriately approved design organisation under a procedure agreed with DASA

Table D.2: Detailed process for Scenario 2

Scenario 3 – Major Repair which has not been approved by a CAA/MAA and which has been developed by an organisation which does not hold an organisational design approval issued by a DASA recognised CAA/MAA

(e) This scenario documents the process by which major repair data developed by an organisation from outside of an airworthiness framework for which recognition is applicable,

Superseded

or from within an airworthiness framework for which the recognition scope, conditions and caveats do not allow for direct consumption of major repairs. In this scenario there is no scope to leverage a recognition framework for direct consumption; however, the data may be used to support an application for approval by DASA or by an appropriately privileged organisation holding an approval under DASR 21 Subpart J. The detailed process is shown at Table D.3.

Stage	Description	Responsibility
Identify and Assess Damage	As per scenario 1	CAMO
Develop Repair Design	Repair data has been produced by an organisation outside of the DASA approval framework, from an airworthiness system that has not been recognised by DASA for direct consumption of major repairs.	Design organisation
Repair Classification	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges
Repair Certification	As per scenario 1 or scenario 2 depending on privileges. Note: the data developed by the design organisation may be used by the applicant to seek relief from developing compliance documents themselves, to support an application for approval to DASA.	As per scenario 1 or scenario 2 depending on privileges
Repair Approval	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges
Repair Configuration Management	As per scenario 1 or scenario 2 depending on privileges.	CAMO
Production of Repair Parts	Produce repair parts	As per scenario 1

Superseded

Repair Embodiment	Embody repair	As per scenario 1
Ongoing Holder Obligations	As per scenario 1	MTC holder

Table D.3: Detailed Process for Scenario 3

Scenario 4 – Approval of unrepaired damage utilising major repair provisions where compliance can be shown with the TCB

(f) This scenario documents the process by which unrepaired damage can be shown to be in compliance with the TCB. This process may also be applied to the case when an individual aircraft without damage is to be flown beyond an existing AwL.

(g) This scenario may be used for managing the demonstration of compliance with the TCB of unrepaired damage for which a repair is required, and for which implementation of additional maintenance inspections or limitations would allow demonstration of compliance with the TCB. In this case, the CAMO seeks an approved design from an organisation holding an approval under DASR 21 Subpart J with access to appropriate type design data.

(h) The limitations may be related to the limit of duration of the approval; however, operational limitations such as flight restrictions are not managed within this scenario. Flight restrictions are to be managed via the Military Permit To Fly (MPTF) process.

(i) Where an individual aircraft without damage is to be flown beyond an AwL item and where compliance with the risk level inherent in the TCB can be demonstrated, and is approved via a major repair approval for unrepaired damage, the arrangements described in this scenario are also applicable. In this case, it constitutes a major repair[8] and follows the approval process outlined herein. Where compliance with the TCB cannot be shown, a major repair approval is not an appropriate authorisation. In this case a MPTF should be considered[9].

Stage	Description	Responsibility
Identify and Assess Damage	As per scenario 1	CAMO
Develop Repair Design	A design is developed which shows that compliance with the TCB can still be demonstrated.	Design organisation
Repair Classification	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges

Superseded

Repair Certification	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges
Repair Approval	As per scenario 1 or scenario 2 depending on privileges. Note: where the design organisation is not the organisation holding the MTC or supporting this organisation, the design organisation must justify that the information on which the evaluation is based is adequate as per DASR 21.A.445(b).	As per scenario 1 or scenario 2 depending on privileges
Repair Configuration Management	As per scenario 1 or scenario 2 depending on privileges.	CAMO
Production of Repair Parts	Produce repair parts	As per scenario 1
Repair Embodiment	Embody repair	As per scenario 1
Ongoing Holder Obligations	As per scenario 1	MTC holder

Table D.4: Detailed Process for Scenario 4

Scenario 5 – Staged approval of damage tolerant repairs

(j) The process by which approval of repairs that include fatigue and damage tolerance evaluation may be staged, to allow an operator to return an individual aircraft to service before all of the fatigue or damage tolerance data has been developed and approved. Note that such repairs are considered major repairs and a staged approach for repairs which include fatigue and damage tolerance evaluation may only be applied for aircraft types for which the basis for fatigue or damage tolerance evaluation is part of the TCB[11]. Note, propulsion systems, and dynamic systems for helicopters, are not eligible for the staged approval process. The general approach outlined below follows the 3-stage approach documented in FAA Advisory Circular 120-93 Appendix 5: Approval Process for New Repairs; however, it is noted that the implementation of the stages is to be outlined as part of the CP, and the combination of stages into a one or two-staged delivery may be appropriate depending on the repair requirements. The stages are described below:

Superseded

1. The first stage is approval of the static strength data and the schedule for submittal of the fatigue or damage tolerance data. This approval is required prior to returning an aircraft to service. For a staged approach to be considered acceptable, good damage-tolerant design practices are required. Prior to a staged approach being invoked, an assessment of the suitability of a damage-tolerant approach with staged approval is to be considered and documented in the CP.

2. The second stage is approval of the fatigue or damage tolerance data. The fatigue or damage tolerance data should be submitted no later than agreed as part of the stage 1 approval . Damage tolerance data might only contain the threshold where inspections are required to begin as long as a process is in place to develop the required inspection method and recurring intervals before the threshold is reached. In this case, the submittal and approval of the remaining damage tolerance data may be deferred to the third stage.

3. The third stage is approval of the damage tolerance data not submitted and approved in the second stage. This would typically involve the inspection method and the recurring intervals. This data would need to be submitted and approved prior to the inspection threshold being reached. Operation beyond the threshold would not be allowed unless the data are submitted to and approved by DASA.

(k) Organisations with major repair approval privileges who wish to approve damage tolerant repairs in a staged process, are to have documented the process via which these approvals will be conducted in the Handbook as per DASR 21.A.435(b)2.

Stage	Description	Responsibility
Identify and Assess Damage	As per scenario 1	CAMO
Develop Repair Design	As per Scenario 1; however, the repair design development may be staged as per paragraph 10.	Design organisation
Repair Classification	As per scenario 1; however, due to the nature of a repair requiring Damage Tolerance Evaluation it is expected that the repair is classified as major[12]	DASA or appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	As the compliance demonstration process is to be staged, a CP is to be established as per the Major Design Changes, see DASR 21.A.93(b), related AMC and GM and Section 7.2.3.	Applicant that meets the eligibility criteria.[13]

Superseded

	DASA may be notified of an upcoming major repair design via a DASR Form 31 directed to the DASA Type Certification Group mailbox. The applicant shall apply for a major repair design approval by way of submittal of a DASR Form 31B and declaration of compliance. The Form 31B is to be submitted to the DASA Type Certification Group mailbox. As the approval process is to be staged, separate applications for approval will be made at each stage of the process as planned in the CP. Each application is made via a DASR Form 31B which clearly documents the extent of the approval applied for.	
Repair Approval	As per scenario 1 or scenario 2 depending on privileges; however, in this case approval is staged with clear limitations to the extent of the approval documented.	As per scenario 1 or scenario 2 depending on privileges
Repair Configuration Management	As per scenario 1 or scenario 2 depending on privileges; however it is critical that when a staged approval process is implemented that the CAMO identifies the staged limits in the maintenance documentation to ensure that the limits are not overflown prior to the approval of the relevant next stage.	CAMO
Production of Repair Parts	Produce repair parts	As per Scenario 1
Repair Embodiment	Embody repair	As per Scenario 1
Ongoing Holder Obligations	As per Scenario 1	MTC holder

Table D.5: Detailed Process for Scenario 5

Scenario 6 – Approval of new repairs based on pre-approved repairs contained in the type data set

(l) This scenario documents the process by which new repairs developed based on those contained in the aircraft repair manual, or based on repairs previously developed for the aircraft, but outside of the limitations of the existing repair approval, are approved. When

Superseded

repairs are developed that are outside of the limitations (for example effectivity and location) of the previously-approved repair scheme they are treated as new repairs, and follow the processes documented in Scenarios 1 and 2. This scenario may leverage compliance demonstration documents developed for previously approved repairs, where applicable, as part of the demonstration of compliance. This may make the repair certification and approval steps more straightforward, but these steps are still required to be conducted.

Stage	Description	Responsibility
Identify and Assess Damage	As per scenario 1	CAMO
Develop Repair Design	A design, based on a pre-approved repair, but not within the pre-approved limitations of that repair, is developed.	Design organisation
Repair Classification	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges
Repair Certification	As per scenario 1 or scenario 2 depending on privileges. Note: compliance demonstration documents developed for previously approved repairs, where applicable, may be leveraged as part of the demonstration of compliance.	As per scenario 1 or scenario 2 depending on privileges
Repair Approval	As per scenario 1 or scenario 2 depending on privileges.	As per scenario 1 or scenario 2 depending on privileges
Repair Configuration Management	As per scenario 1 or scenario 2 depending on privileges.	CAMO
Production of Repair Parts	Produce repair parts	As per scenario 1
Repair Embodiment	Embody repair	As per scenario 1

Superseded

Ongoing Holder Obligations	As per scenario 1	MTC holder

Table D.6: Detailed Process for Scenario 6

Scenario 7 – Approval of changes to the approved type design repair data

(m) Manuals and other Instructions for Continuing Airworthiness (ICA) (such as the Manufacturer's Structural Repair Manual (SRM), Maintenance Manuals and Engine Manuals provided by the holder of the type-certificate, supplemental type-certificate, design approval or Auxiliary Power Unit (APU) AUSMTSO authorisation as applicable) for operators, contain useful information for the development and approval of repairs. When these data are explicitly identified as approved, they may be used by operators without further approval to respond to anticipated in-service problems arising from normal usage, provided that they are used strictly for the purpose for which they have been developed.

(n) The process by which changes to any pre-approved repairs, as documented in the aircraft ICA (such as the SRM), are approved is considered a change to the type certificate (i.e. DASR 21 Subpart D).

(o) Changes to the approved repair schemes provided for the platform are to be treated as changes to type and classified / managed IAW DASR 21 Subpart D[14]. When developing standard repairs as changes to the type certificate, the developer should also take into account GM 21.A.435(a) and AMC 21.A.433(a) respectively for classifying and substantiating the design. In the case of changes to the previously-approved data being developed by the aircraft OEM, a CRE assessment is required to be included as part of the application for approval of the change to the type certificate. Note that, once the change to the type certificate for the repair is approved, updates to the ICA (such as SRM), which promulgates that repair data, is managed by the organisation holding the MTC, under a procedure agreed with DASA IAW DASR 21.A.61 and DASR 21.A.57 by the organisation holding the MTC.

Superseded

Annex E - Propulsion System Related Risk Analysis

Aim

(a) This Annex provides a generic overview of the process that may be followed when assessing the risk to an Australian Defence Force (ADF) aircraft fleet when a notable propulsion system related hazard is identified. This Annex ostensibly supports the broader risk management process that would underpin the response to an unsafe condition associated with a propulsion system design or manufacturing deficiency, or a certification shortfall.

(b) This Annex provides guidance to understand a Risk Analysis (RA) generated by a propulsion system Original Equipment Manufacturer (OEM) and identifies the key steps the operator should consider when characterising technical risk as part their 7-step risk management process. This Annex does not provide tools or equations to conduct a RA[1].

Introduction

(c) In the event of a propulsion system related component failure, in particular one that would lead to an unsafe condition[2], it is imperative to understand the failure mechanism and the risk that additional failures may pose to ongoing and future ADF operations.

(d) Due to typically high production, repair, and replacement costs, and potential logistics constraints for propulsion system components, the operator may be required to operate an aircraft fleet at a higher risk for a period of time. In order to continue operations, the risk must be eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) and retained at the appropriate level. In order to characterise the risk to the ADF fleet and conduct a robust RA, adequate information on the failure mechanism, understanding the population at risk, failure rate data, propulsion system usage, maintenance history and propulsion system component life distributions are required. Generally, type design data access limitations will mean that the engine OEM conducts the RA for the ADF; however this may not always be the case.

DASA Recommended Propulsion Risk Analysis Approach

(e) When attempting to characterise the risk of a propulsion system related hazard that may lead to a hazardous propulsion system effect[3], DASA recommends using an approach aligned with *FAA AC39–8 - Continuing Airworthiness Assessment Methodology*, in combination with appropriate engineering judgement and consideration of individual operator context, to identify and assesses strategies to eliminate or otherwise minimise the hazard SFARP[4]. The approach outlined in AC39-8 is well understood by industry and is used by engine OEMs globally to manage propulsion system related hazards and communicate risk to the relevant regulators and operators. Further guidance on understanding the conduct of risk analysis for propulsion systems can be found within the *FAA Risk Analysis Correspondence Course*.

(f) The Defence Harmonised Risk Matrix (DHRM) and aircraft System Safety Programs (SSP) are focused on the instantaneous or average risk to the fleet at the point in time the risk was calculated. They usually do not fully account for the future utilisation of the fleet or the risk associated with any mitigation strategies that may be utilised to minimise the risk across an

Superseded

extended campaign. As propulsion system related hazards may take a relatively long time to remediate and often involve complex interim risk controls, DHRM or the SSP should not be used as the sole mechanism to characterise the risk.

Generic RA Mathodology Post Fleet Identification

(g) There is no 'one size fits all' approach to risk management and not every identified hazard requires the conduct of a detailed risk analysis as outlined in the following steps. The following approach provides guidance on the process that should be followed in order to conduct a more detailed RA for a hazard that has been identified as complex, or requires risk to be retained for an extended period. RAs are only approximations based on the information available at the time. As such, good engineering judgement and a pragmatic approach should be used when an RA is performed.

(h) Typical propulsion system failure investigations can often take months to identify root cause and contributing factors. As such, in order to support Commanders in the short-term, a simple RA should be conducted in order to determine the immediate risk to the ADF fleet. It would require ADF, and if applicable, global fleet life usage data of the affected component (i.e. Time Since New, Time Since Overhaul, engine cycles, number of global failures). The RA should be conducted at the aircraft level using a method consistent with the platform SSP, in order to quantify the immediate risk to the fleet where the likelihood value would be defined as failures 'per AFHR' or 'per ENHR'. The likelihood value and the consequence of the failure are then applied to the platform SSP to generate a system safety Hazard Risk Index (HRI). The calculated HRI and any other applicable technical data related to the failure should be provided to the operator to support the operator's risk management process.

(i) To support an initial decision regarding the risk to continuing ADF operations, the operator should use the risk management process applicable to their platform (usually DHRM) to make an initial determination whether to continue operation. This is expected to be informed by knowledge of the event, the initial HRI, available technical data, and available technical and operational risk controls. It is likely that technical data, such as root cause or identification of an 'at risk' population will not be known at this time and therefore specialist judgement will be required.

(j) Once more information on the failure mode is available, and it is identified that the hazard is likely to manifest in other aircraft, a detailed RA should be conducted to enable a more accurate estimation of the likelihood of a similar failure occurring in the future. This is generally developed once more data is gathered by the organisation conducting the RA on the global fleet and individual fleet usage statistics. OEMs will usually be heavily engaged in developing detailed RAs for propulsion systems, and therefore are the usual, but not only, source of RA data[5].

(k) A detailed RA for propulsion system issues usually involves the following steps:

1. **Inputs to detailed RA.** When conducting an RA, a representative dataset of the affected component should be compiled. It would include the current fleet life distribution of the suspect pool of components, life accrual details of the failed components and any data associated with the failure mechanism of the component.

2. **Developing a Representative Statistical Distribution.** Utilising the dataset from step 11.a, a statistical distribution (i.e. Weibull, lognormal, etc., depending on the failure characteristics and dataset) should be generated. A Weibull plot (see Figure 1) is

Superseded

commonly used in industry to model failure data, although other statistical methods may be used by the OEM (or organisation conducting the RA) depending on their processes or the failure mechanism. The Weibull plot typically represents time to failure or another similar usage parameter on the x-axis versus cumulative failure probability for the component population on the y-axis. The Weibull distribution is typically defined by two parameters: the shape parameter, called the 'slope' or β, and the scale parameter, also called the 'characteristic life', θ or η (note these symbols may vary). These parameters define the specific component failure distribution and corresponding plot.

Figure 1 - Example Weibull Chart

3. **Develop the Cumulative Density Function (CDF).** Based on the statistical distribution generated in step 11.b, a failure probability curve (also referred to as the CDF curve or per part probability of failure curve) should be produced for the affected part. The cumulative probability of failure from time zero until a given time is displayed by this curve and is used to estimate the proportion of components that will fail over a period of time. The y-axis of the CDF curve ranges from 0-1 (or 0%-100%) and is a probability

Superseded

value. Generally, the OEM may only provide an excerpt of the CDF to align with the current life limit of the affected component as shown in Figure 2 below.

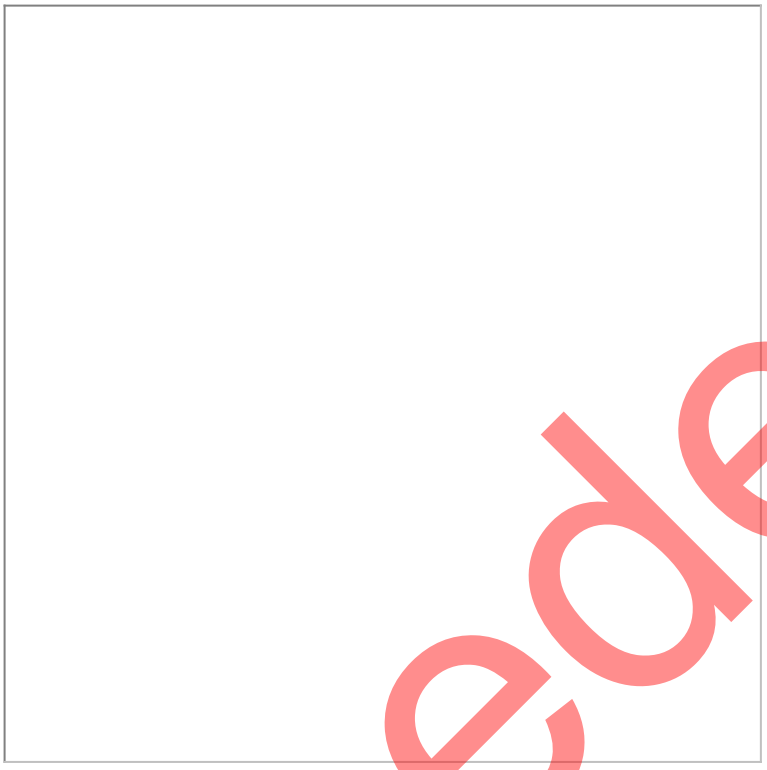
Figure 2 - Weibull CDF Curve

4. **Validate Weibull & CDF Curve.** Having produced a statistical model, it is important that the model be validated against the real world understanding of the problem. This is often achieved by calculating the historical predicted number of events (PNE) and comparing that to the actual number of events experienced to date. The PNE for the fleet is calculated by summing all the individual component probabilities of failure calculated from the CDF curve. Where there is significant difference between the statistical model and actual fleet experience, the assumptions, data and model type may need to be revised. When using PNE as part of the risk assessment process, it is important to understand the following:

   i. The PNE cannot be translated directly to a probability of failure (%). Using the PNE (ϕ) for the ADF fleet at any point in time, the probability that a discrete

Superseded

number of failures (x) will have occurred in the fleet can be calculated using the Poisson distribution as follows



For example, if the PNE for affected components to-date was calculated to be 0.33, the probability of having an 'X' event up until the point of calculation is detailed within Table 1 below:

Table 1 - Historical PNE depicting the probability of events occurred to-date

Superseded

5. **Develop a Fleet Management Strategy.** As previously identified, elimination of a propulsion fleet hazard can take years to implement, especially if a change to type design is required or there are considerable logistics constraints. As such, the operator supported by the relevant engineering, logistics and maintenance organisations will need to develop a fleet management strategy to eliminate or minimise the risk SFARP. Fleet management strategies usually include requirements for minimum aircraft availability, expected rate of effort (ROE), maintenance capacity and turnaround times, interim or final airworthiness / inspection limit reductions, and any other relevant logistics or operational constraints. When developing a fleet management strategy, it is common for multiple scenarios to be developed to examine the corresponding risk, cost and operational impact. The time period where the ADF fleet is exposed to an elevated level of risk, as predicted by the fleet management strategy, is defined as the campaign period.

6. **Determine Future PNE.** Utilising the CDF curve for the failure, the life usage distribution of the affected components and the assumed future utilisation rate(s) for the fleet, the future PNE can be calculated for the campaign period. A PNE estimate should be produced for every fleet management strategy scenario, including a 'baseline' scenario where no action is taken to mitigate the risk. This method has significant advantages over traditional average probability of failure based methods, as it enables the operator to understand how variations in operational requirements, logistics constraints, and engineering risk controls influence risk over the campaign period. Figure 3 provides an example of how the cumulative PNE for an example fleet varies based on different fleet management scenarios. This type of model can further inform the Risk Management Authority (RMA) when selecting a fleet management strategy that is SFARP, when balanced against contextual considerations (i.e. logistics, cost, time-to-implement, capability requirements).

Superseded

Figure 3 - PNE Comparison

7. As per the example in Table 2 below, Poisson distribution must be used to convert the final PNE for each scenario into a probability of a discrete event (i.e. 0, 1, 2 … n events). This should be applied to each fleet management scenario to determine the likelihood of zero and non-zero events occurring over the campaign period.

Superseded

Table 2 - Probability of 'X' Events Occurring During Campaign Period

(l) Once this analysis is complete, each fleet management strategy scenario and the subsequent risk can be used to inform the risk characterisation step in the 7-step risk management process. This allows the RMA to understand the long-term risk for each scenario, and to allow for the adoption of a fleet management strategy that balances operational impact, cost and risk. Importantly, this approach does not replace an operator's DHRM or SSP, but rather supplements those approaches with a method that provides increased visibility and understanding of risk drivers.

(m) **Monitoring Risk.** Once a risk fleet management strategy has been implemented it is possible to track progress against that plan to support risk monitoring. Should there be notable deviations from the plan, further information relating to root cause, or changes to underlying assumptions identified, the RA should be revised. This includes changes to assumptions made when developing the fleet management strategy.

Superseded

(a) Risk management activities that warrant the use of this approach to characterise the risk of a propulsion system hazard would usually require retention of an elevated level of risk to aviation safety for a period of time. In these circumstances, the operator would normally seek independent safety assurance from DASA via the Military Permit to Fly (MPTF) process (refer DASR 21 Subpart P and DASP Manual Volume 3 Section 7.5 for further information). Alternatively, the risk analysis process outlined herein may support the proposed corrective actions for DASA to issue Airworthiness Directive (AD) (refer to DASR 21.A.3B and DASP Manual Volume 3 Section 7.4.3 for further information).

Further Assistance

15. The Propulsion System Integrity (PSI) Section in DAVENG acts as the aerospace propulsion system integrity Centre of Expertise for Defence[6], and can provide additional information and training on the RA methodology outlined within this Annex. PSI Section and DSTG can also assist with reviewing, interpreting and validating OEM RAs to determine if the methodology, assumptions and data used in generating the RA is appropriate.

Risk Analysis Terms and Definitions

Component (or part) risk. Risk from operating one of the parts of a particular type in the fleet; risk from operating a single component or part.

Cumulative Density Function, CDF – F(t). The cumulative probability of failure from time zero until time t. CDF is used to estimate the proportion of components that will fail over a period of time. It is also referred to as Per Part Probability of failure

Cumulative. Cumulative refers to failures or risk accumulated from a beginning time point to a later point; stated as total expected failures, etc.

Current risk. Today's risk based on current in-service management practices.

Engine risk. Rollup of risk from all critical parts in one single engine, or rollup of risk from all modules in one engine.

Expected failures. The expected number of failures over an extended time (part life or age, calendar time, etc.); usually stated as failures or fractions of failures (0.0, 0.2, 0.4, 1.05, 2.0, etc.).

Failure rate. The expected failures or events over a specified time period, stated as expected failures per X hours, X cycles, etc.

Fleet risk. Rollup of risk from the total population of that critical part, or module or engine in the fleet.

Future risk. Risk projected at a later date based on current or alternate in-service management practices.

Hazard Rate. This is the instantaneous probability of failure per unit time. Instantaneous failure rate or we say instantaneous hazard rate

Superseded

PoF. Probability of Failure

Predicted Number of Events, PNE. The estimated number of times an engine/component failure will occur in a given fleet expressed over a given campaign period. Also referred to as Expected Number of Events, ENE

Probability of occurrence or failure. The probability of 1 event (or more) occurring; stated as 0.0 to 1.0, or zero to 100%.

Risk analysis. A probabilistic method used to estimate, among other things, the expected number of 'events' (e.g. cracking, failure) in a given period of time and to estimate the probability of one 'event' or more occurring in that time period

Risk methodology. Statistical methods used to conduct the risk analysis. Typically, a Monte Carlo computer simulation model manipulates inputs such as part life distribution, part age histogram, and fleet operational data such as life limits, cycles or hours/month, maintenance scenarios, etc., to produce the above defined outputs. The statistical distribution of failures can be assumed as normal, log normal, Weibull, etc.

Weibull Parameters. For wear-out problems, the Weibull distribution will have a slope greater than 1, and values typically are in the range of 3 to 5, but may vary. A Weibull distribution with a slope equal or close to 1 reflects a random failure mode, and a slope of less than 1 is indicative of infant mortality

Useful Information

- Defence Aviation Safety Regulations
- DASA Propulsion Systems Integrity Section Website
- ADF Propulsion Systems Engineering Course (PROPSYSENG)
- FAA AC 39–8 - Continuing Airworthiness Assessment Methodology
- FAA Risk Analysis Correspondence Course
- DASP Manual Volume 3 Section 6.2 – Safety Management
- DASP Manual Volume 3 Section 7.5 – Flight Conditions and MPTFs

Superseded

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th><th></th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

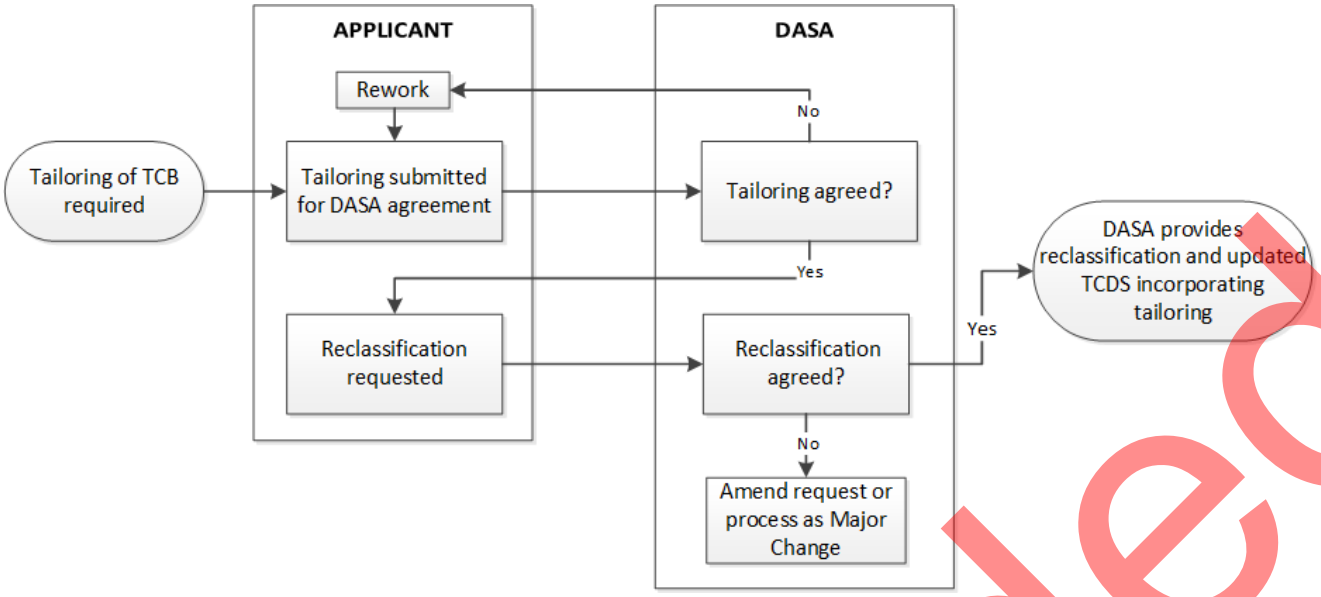


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

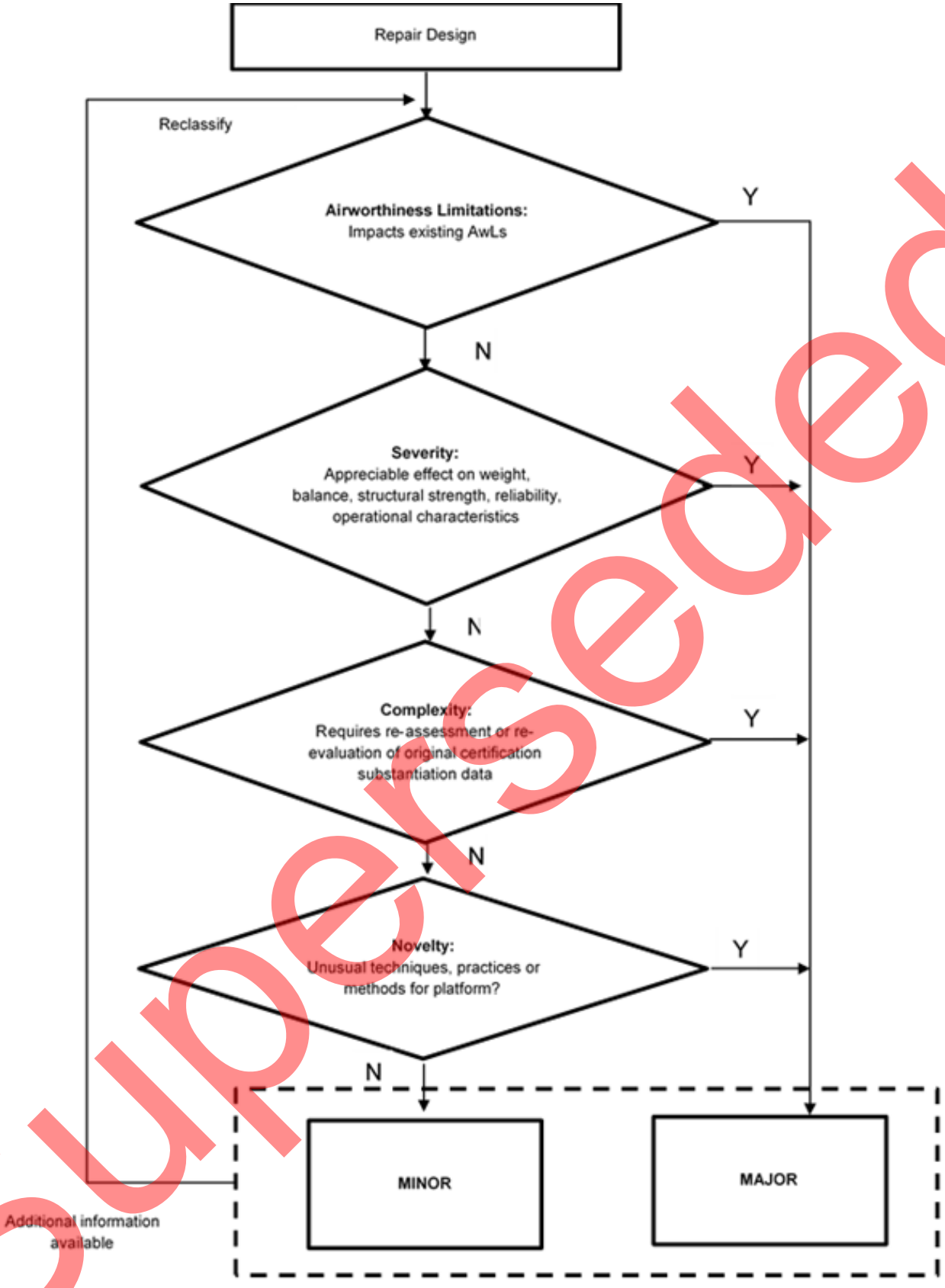
   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded



Superseded

Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

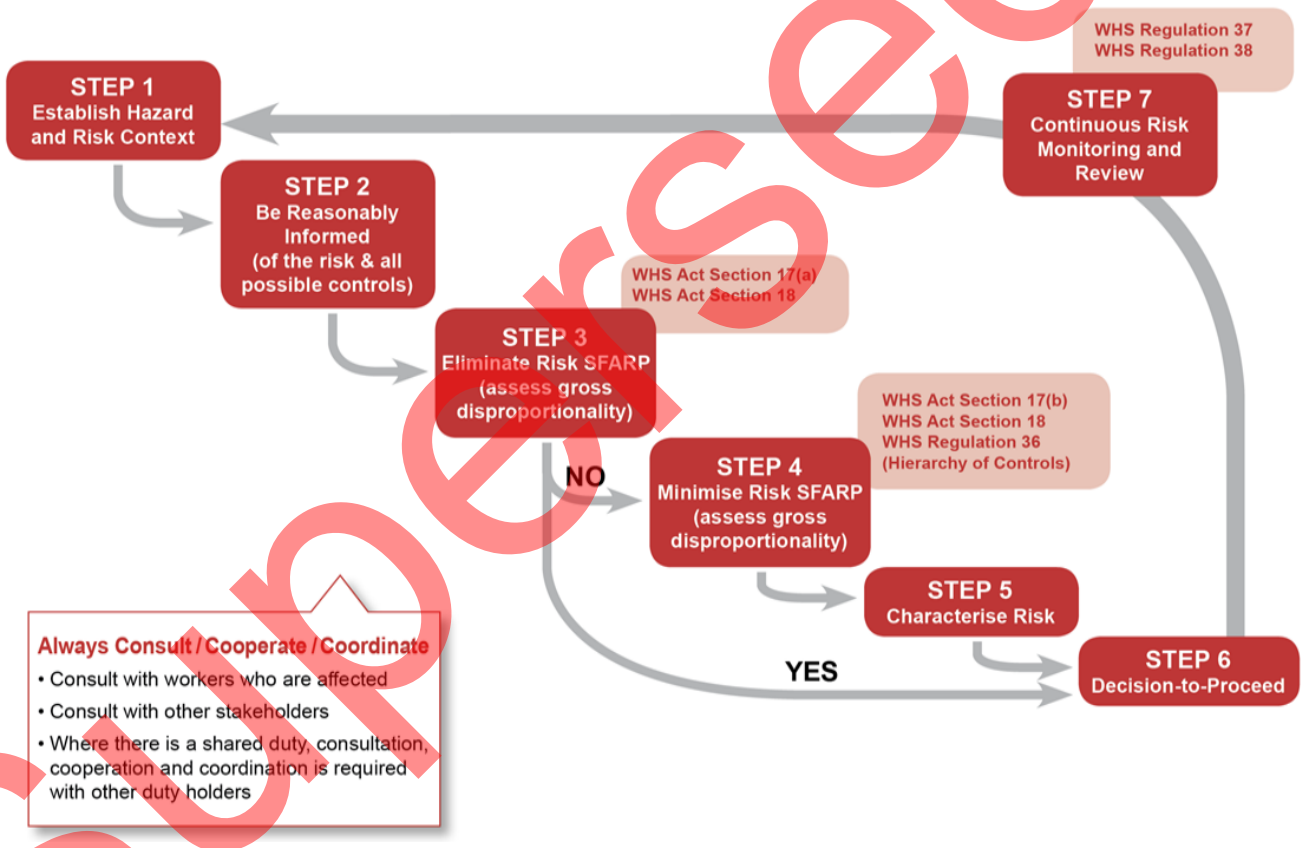


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

7.4. Continued Airworthiness

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

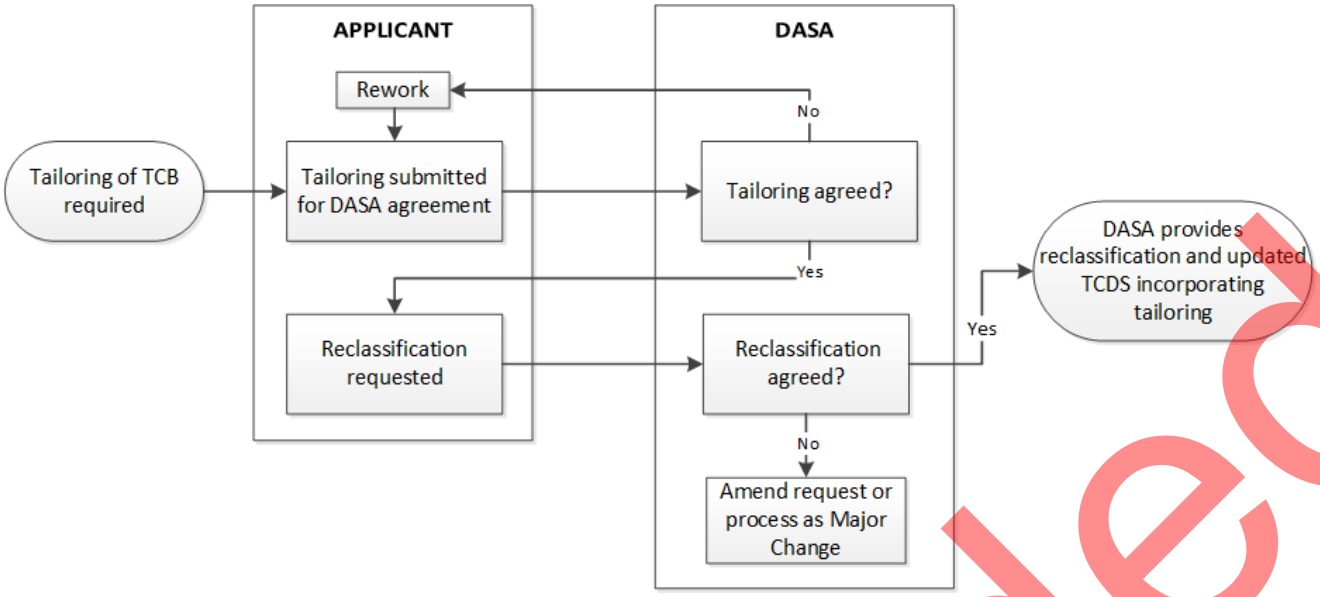


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

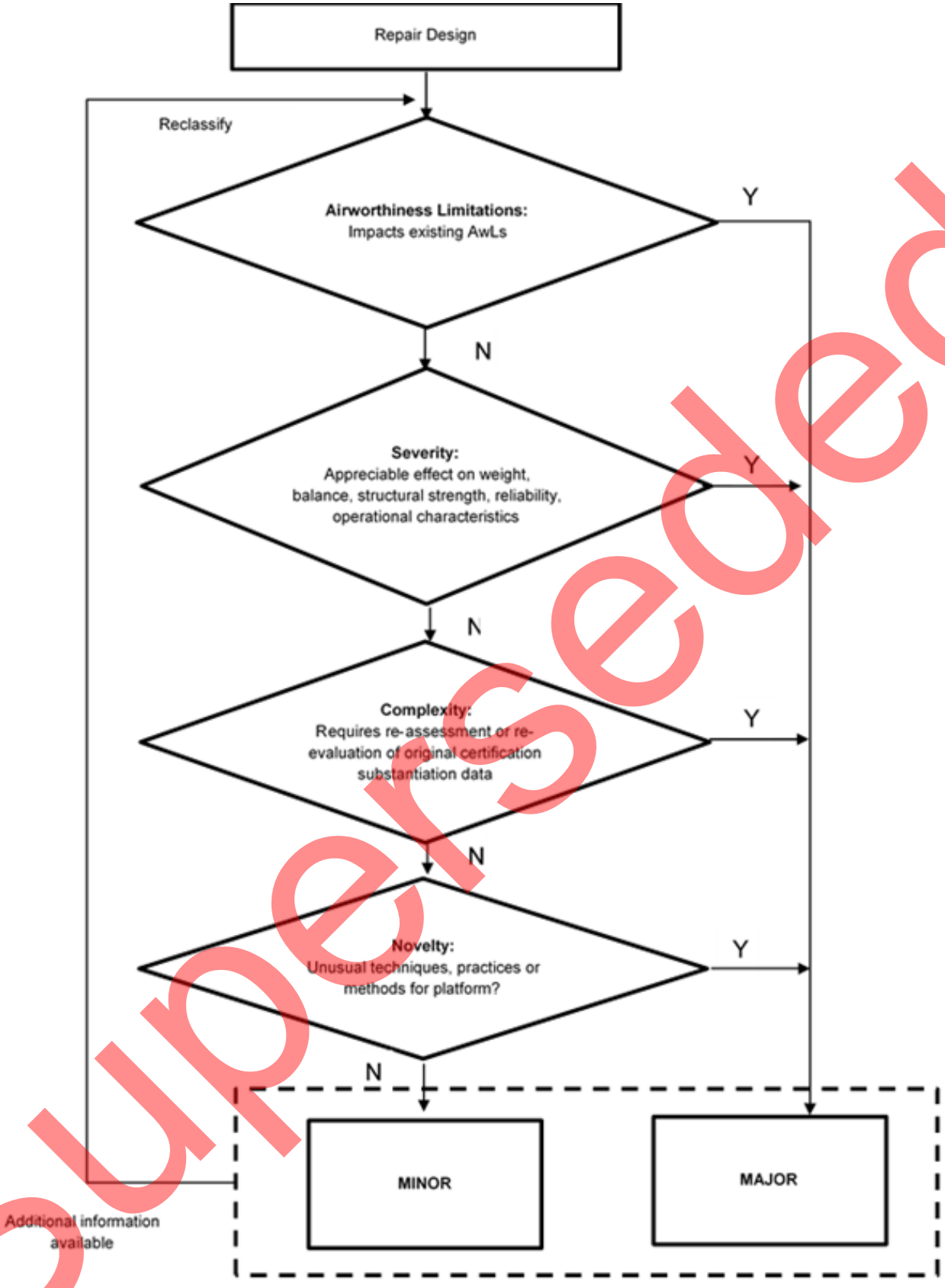


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

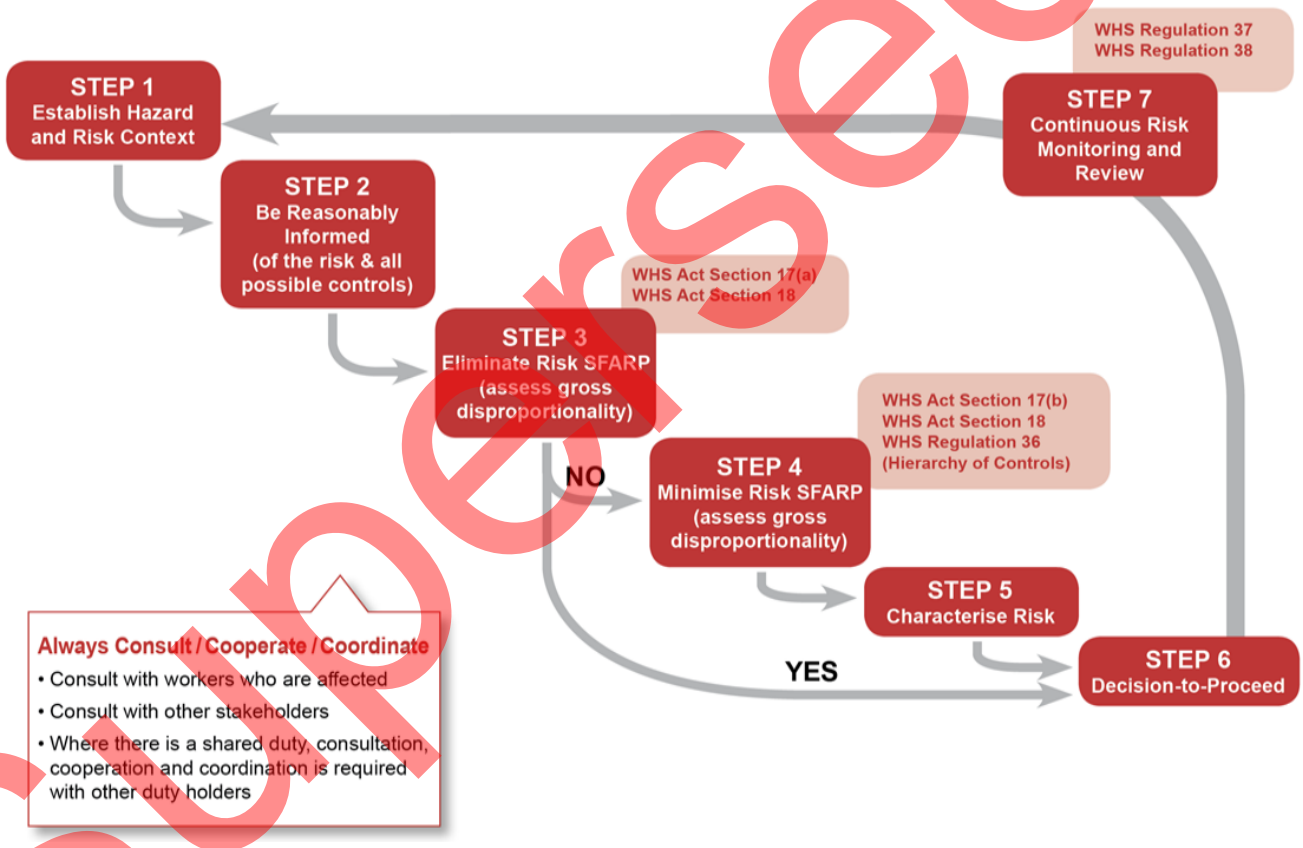


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th><th></th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

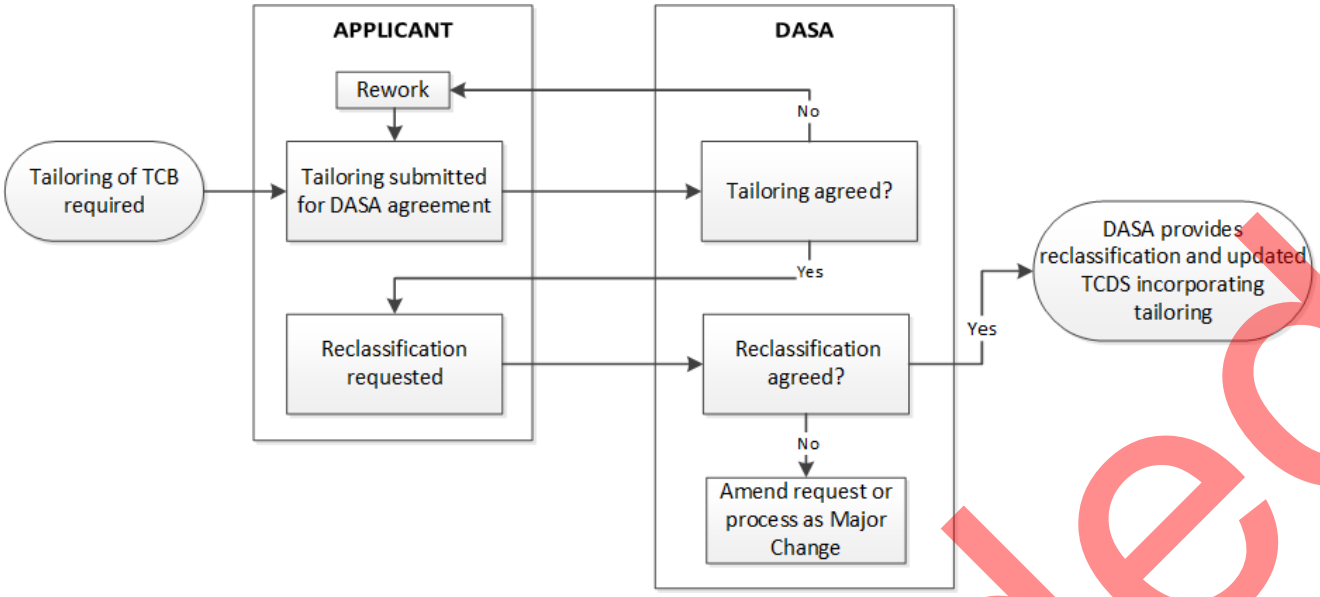


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

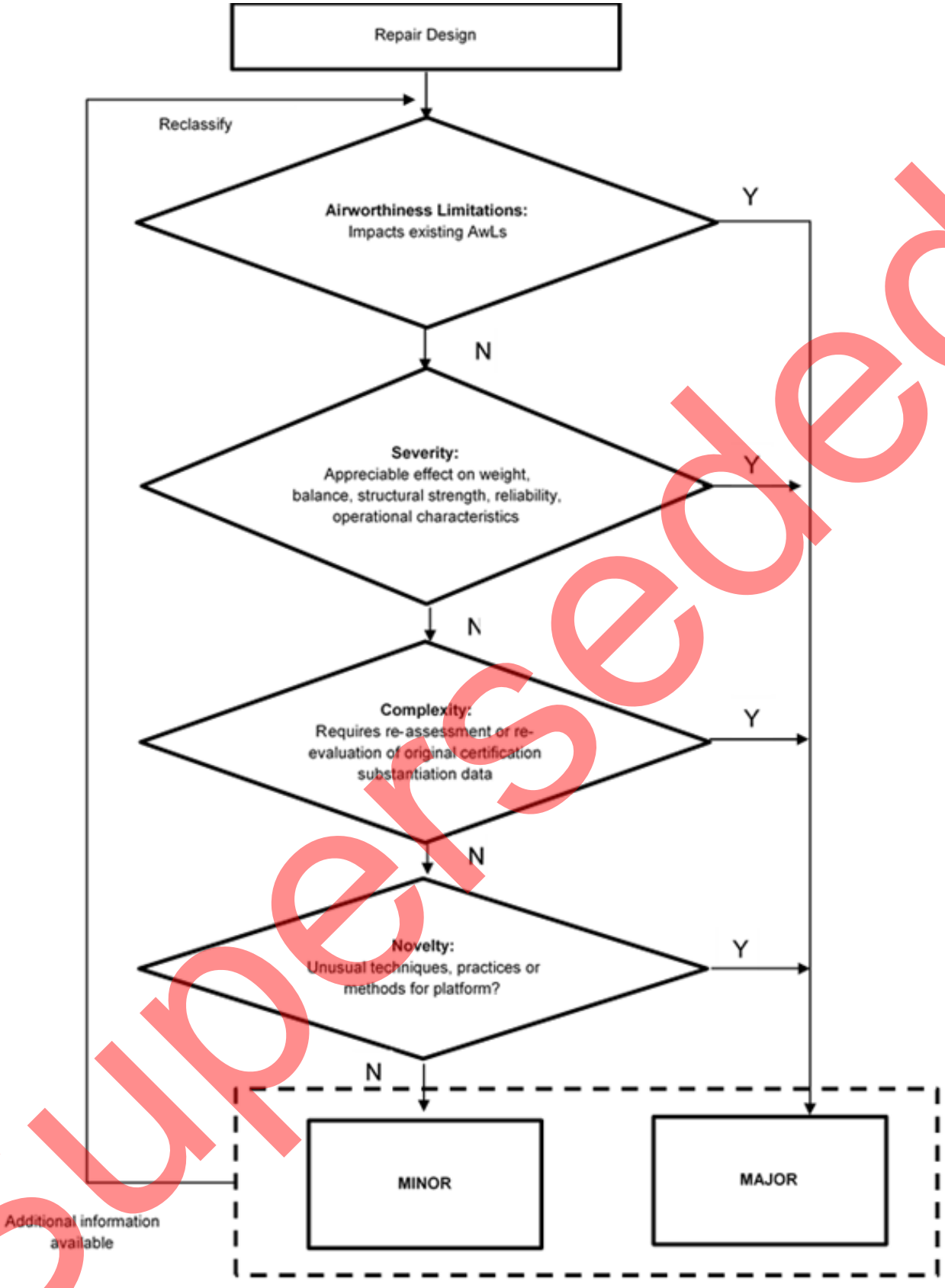


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

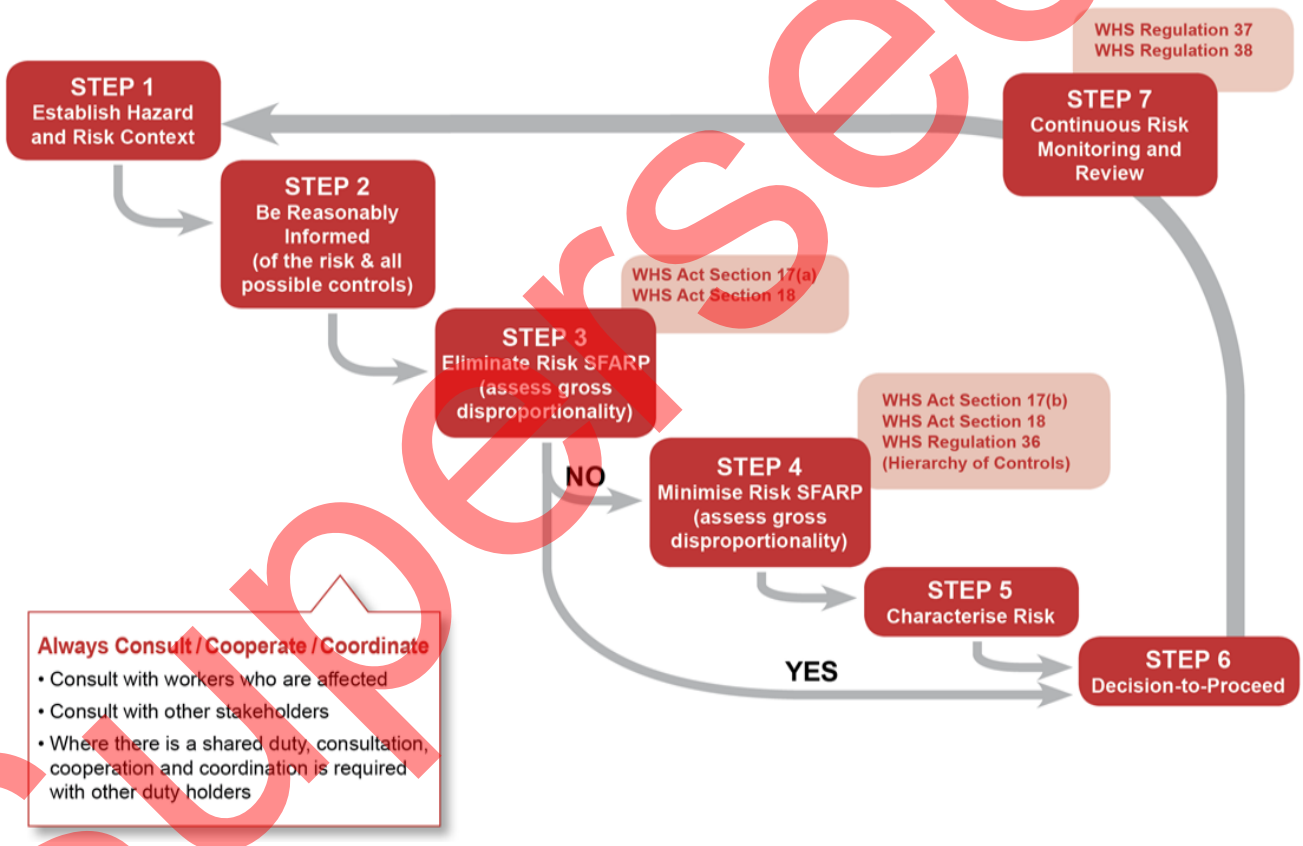


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

Annexes

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

f. Critically, throughout this complex lifecycyle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

Superseded

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

Superseded

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

Superseded

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

Superseded

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

Superseded

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

Superseded

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

   vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

Superseded

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the

Superseded

TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity
2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration
3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

Superseded

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved
2. broad detail on the design and aircraft intended use
3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.
4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:
   i. change to the design or intended use
   ii. change to compliance demonstration approach (including the means of compliance)
   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification
   iv. change to design organisation resources or approvals
2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)
3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

Superseded

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended' design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

Superseded

ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by

Superseded

which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or

2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA

2. the CAA/MAA is sufficiently experienced in certification of the particular design activity

3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed

4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed

5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

Superseded

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.
4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

Superseded

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:
   i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;
   ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
   iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

Superseded

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

Superseded

1. major change to the existing MTC under DASR 21 Subpart D, or

2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.

2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be

Superseded

simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,
2. the TCAE reflects the agreement and arrangements under which such applications may occur, and
3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

Superseded

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b) 21.A.93(b)	Yes	Certification programme should be presented as a CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	

Superseded

Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The

Superseded

applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer

Superseded

to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th colspan="2">Not Significant
(21.A.101)(b)(1))</th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

Superseded

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

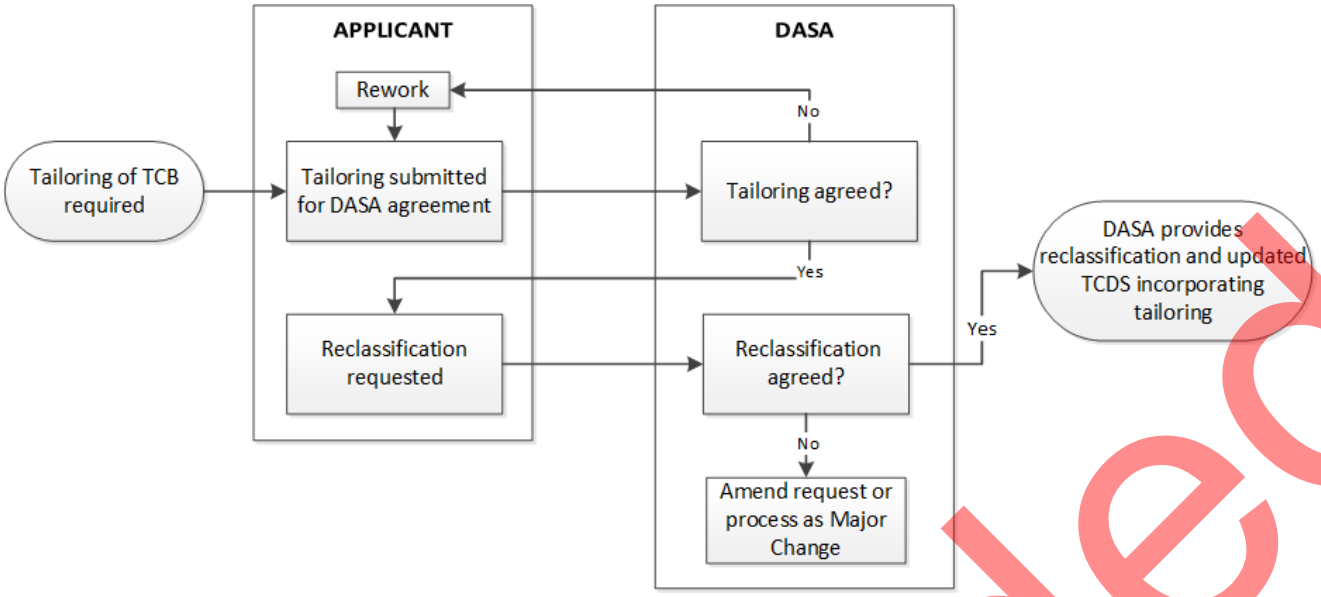


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

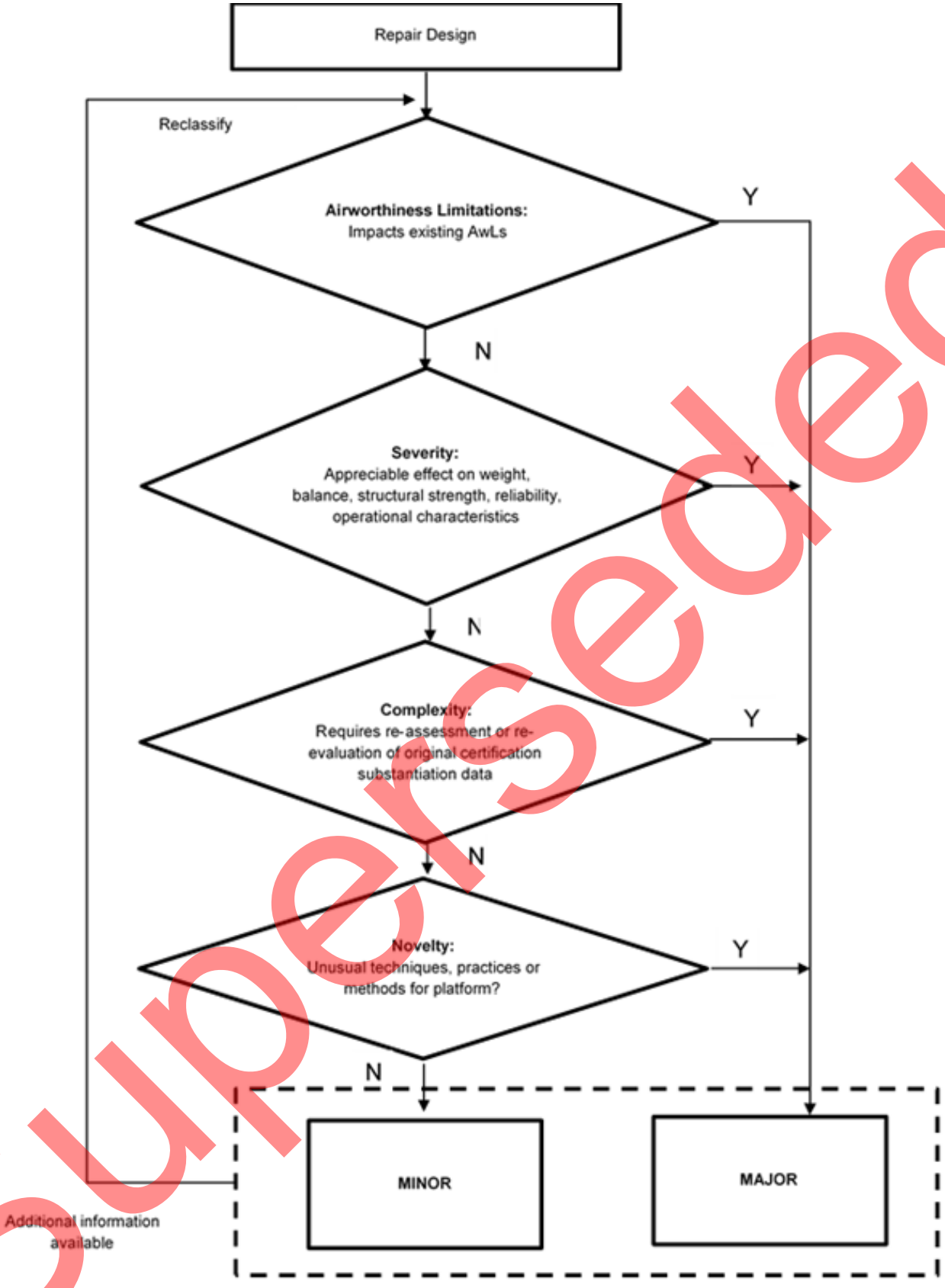


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an

Superseded

impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before

Superseded

distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant

Superseded

method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine /

Superseded

Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.
   7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;
3. manuals are provided in a medium compatible with user requirements;
4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a

Superseded

manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

Superseded

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

Superseded

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR

Superseded

Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

Superseded

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Superseded

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4 Continued Airworthiness

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

Superseded

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

   i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

   ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

Superseded

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

   i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

   ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

   iii. Leading local efforts to eliminate or further minimise known hazards;

   iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46] .

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause. Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

Superseded

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

Superseded

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

Superseded

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action
4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the

Superseded

WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.
2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)
2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO
3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the

Superseded

same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

Superseded

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical

Superseded

foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Superseded

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

Superseded

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the

Superseded

aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

Chapter 7.5 Flight Conditions and Military Permits to Fly

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority (inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Superseded

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance*[79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so

Superseded

far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.
2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:
    i. a defect that cannot be deferred as it has been assessed to endanger flight safety
    ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out
    iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached
    iv. an Airworthiness Directive (AD) has not been incorporated.
3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).
4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

Superseded

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

Superseded

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

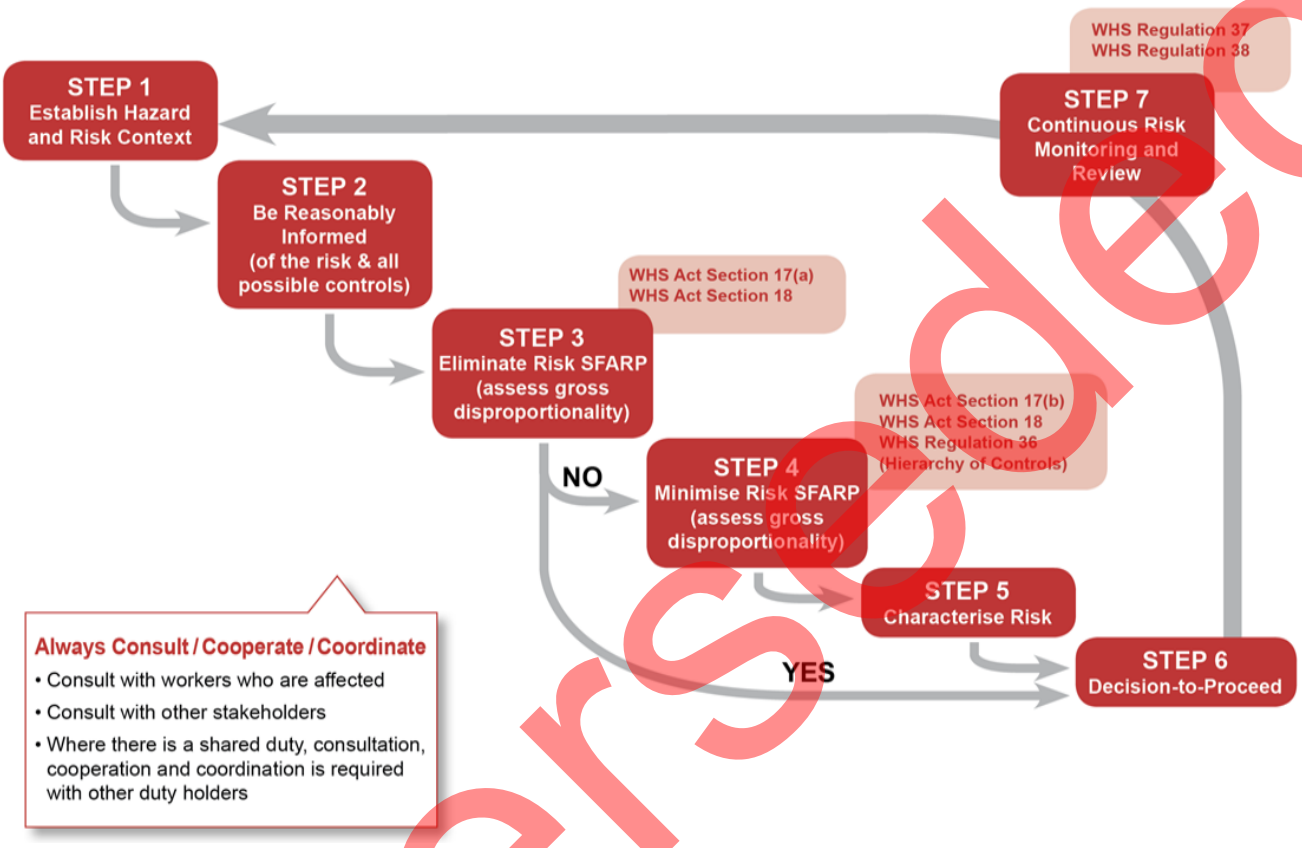


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary

Superseded

nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined

Superseded

by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as

Superseded

'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.

2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.

3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)

2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or

3. Where flight test operational substantiation and/or endorsement is required.

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

Superseded

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage; or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

Superseded

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

Chapter 7.6 Design and Production Organisations.

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

Superseded

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

Superseded

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP

Superseded

2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Superseded

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

Superseded

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive

Superseded

safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Superseded

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)

Superseded

2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks

3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)

4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used

5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

Superseded

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly, MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

Superseded

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

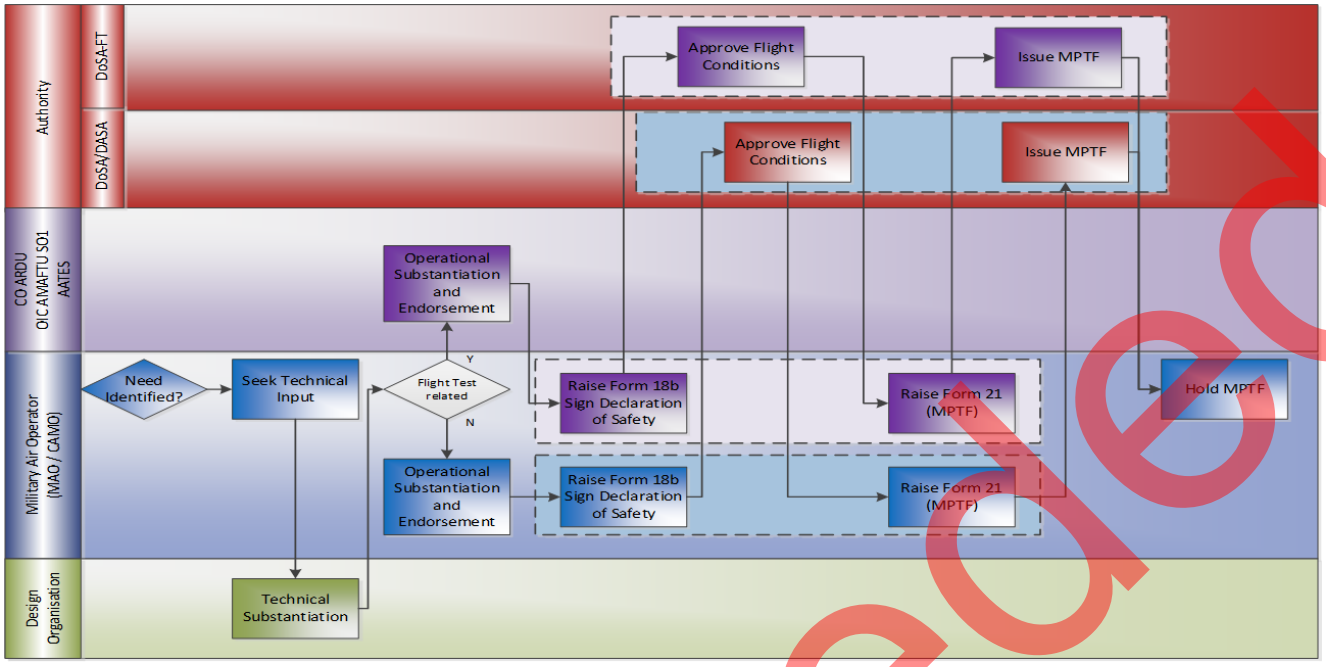
Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

Annex A - Application for MPTF



Notes:

(a) See also GM to DASR 21 Subpart P for application flowcharts

(b) Whilst two separate applications are required (DASR Form 18b and DASR Form 21), DASRs do not prohibit both being submitted to DASA concurrently (and this is preferred for MPTFs pertaining to flight test activities submitted to DoSA-FTs).

Superseded

Annex B - MPTF Examples within DASR Context

(a) Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the Military Permit to Fly (MPTF) process within the DASR context. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test).

DASR-unique MPTF Characteristics

(b) EASA implementation of permits to fly stipulates a single aircraft may only have one valid permit allocated at one time, and that a permit to fly may only be applicable against a single aircraft. In order to accommodate Defence use of MPTFs, which is focussed on providing in-service flexibility within a military environment, AUS-unique DASR Acceptable Means of Compliance (AMC) and Guidance Material (GM) allows for concurrent MPTFs being valid against an individual aircraft, and for a single MPTF to be valid against more than one aircraft. Therefore, the scope of an MPTF application may include:

1. **Type MPTF.** Applicable to all aircraft of that type within a fleet. For example, an MPTF that authorises initial operation of a new aircraft type prior to award of a Military Type-Certificate (MTC).

2. **Multi-tail MPTF.** Applicable to a subset of aircraft within a fleet. For example, authorisation to fit a range of self-protection modifications to a number of Defence aircraft prior to an overseas deployment.

3. **Tail-specific MPTF.** Applicable to an individual aircraft tail number, which aligns to the traditional use for authorising flight with deficiencies/conditions particular to an individual aircraft. For example, for ferry flights to rectify damage.

(c) **Considerations for Multiple/Concurrent MPTFs.** The potential for multiple MPTFs being applicable to an individual aircraft tail number, or a single MPTF having applicability to more than one tail number, requires the applicant for a new MPTF to ensure that organisations developing technical and operational substantiation for flight conditions are aware of existing MPTFs, and new MPTFs are raised only where the scope of the non-compliance to airworthiness or aviation safety requirements being addressed falls outside what would be considered as a change to existing MPTF(s).

1. As an example, where an extant MPTF provides authorisation to operate with a yet-to-be-approved modification, any significant defect or damage to elements of that modification, may be managed via a change to the existing MPTF; whereas an MPTF to support a ferry flight to a maintenance venue for an overdue structural inspection not associated with the modification is best processed as a new permit.

(d) Furthermore, whilst Military Air Operator (MAO) understanding and execution of holder obligations for conditions and/or restrictions associated with a single MPTF may be relatively straightforward, in instances where multiple MPTFs may apply to individual aircraft, the holder of multiple MPTFs must establish systems to meet concurrent obligations. Therefore, the MAO must implement systems to ensure aircrew/authorising officers have visibility of an aircraft's configuration and all relevant flight conditions and/or restrictions that enable safe flight under respective MPTFs, and correctly apply those that are applicable by ensuring

Superseded

aircraft maintenance and aircrew documentation adequately reflect requirements which are visible to aircrew on a flight-by-flight basis.

1. As an example, the aircraft technical log is amended (e.g. a defect raised) to accurately record the non-conformant condition and to reference the authorised MPTF that closes/defers the defect and informs aircrew of specific requirements. Flying Orders may also be used to provide pre-flight visibility of approved conditions to aircrew.

Scenarios for Multiple/Concurrent MPTFs

(e) Potential scenarios where multiple, concurrent MPTFs may occur for individual aircraft include:

1. A Defence aircraft fleet operates initially under a Type MPTF in-lieu of a MTC/MAOC (when the status of the type-certification programme does not yet support award of a MTC). During operations under this Type MPTF, an individual aircraft is then damaged (e.g. bird strike, hail damage, overstress event, etc) and lands at a remote airfield. A concurrent, tail-specific MPTF is then also required to authorise a ferry flight to a suitable maintenance facility.

2. AWC is conducting flight trials to generate evidence for clearance of a new store. The evidence is contingent upon operation in various weather conditions and a multi-tail MPTF is therefore made applicable to all aircraft within a specific SQN. When required, weather conditions are forecast, and an available aircraft is fitted with the test store and a test flight is conducted, under the MPTF authorisation.

3. A number of Defence aircraft are deployed to an overseas area of operations, but prior to departure require fitment of aircraft self-protection modifications not yet approved under DASR-approved designs. A single, multi-tail MPTF for all modifications applicable to the subset of aircraft being deployed is raised. In this case, depending upon the mix of modifications to be fitted, the option for more than one MPTF to cover fitment of the modifications is also possible.

Category – Flight Test Requirement

Scenario: Bespoke major modification for in-service Defence aircraft by a DASR MDO

(f) A DASR Military Design Organisation (MDO) has been contracted by a CASG acquisition SPO to design a modification to an in-service aircraft. The modification will require an assessment of the general behaviour of the aircraft as part of compliance demonstration. Developmental flights for modification testing and generation of compliance demonstration evidence are to be conducted by ADF test aircrew under a Defence MAO's authority, prior to supplemental type-certification of the modification by DASA.

Application for approval of Flight Conditions

1. **Determination that MPTF is needed (Applicant).** The SPO, in conjunction with the aircraft's MAO, determine the flight test category for the compliance demonstration flights as Category 2 IAW DASR.FT.05, and hence an MPTF is required. As a Category 2 test is required, the SPO seeks AWC assistance for test conduct. AWC decide to conduct the test activities under the control of their own MAO and are best-placed to apply for flight conditions and the MPTF.

Superseded

2. **Technical substantiation.** The modification of the baseline aircraft is quite extensive and hence a significant volume of technical substantiation is required. The SPO has maintained ongoing liaison with the MDO throughout the development phase and has obtained Type Design documentation, including completion of compliance demonstration evidence (as well as findings not related to flight test). These documents are formal in nature, signed by appropriate MDO staff, and include, with justification, flight conditions required for safe flight during the development and compliance demonstration testing.

3. **Operational substantiation.** IAW DASR.FT, operator substantiation and endorsement for a Category 2 test activity must be provided by a MAO member with appropriate flight test authorisations as determined by a DoSA–FT. In this case, AWC authorised staff review and endorse the adequacy of the flight conditions. Operational limitations inputs to flight conditions are derived from review of the technical documentation plus operational planning (i.e. test risk management) activities and are collated within an appropriate document (such as a Flight Test Plan).

4. **Declaration of Safety**. AWC staff collate technical substantiation from the MDO (via the SPO and/or MTC Holder) and the internally-generated operational substantiation/ endorsement, sign the DASR Form 18b Declaration of Safety and submit to the Authority (DoSA-FT) for approval.

5. Approval of Flight Conditions. The DoSA-FT receives the application and conducts assurance review and approval. On approval, the Form 18b is signed by the Authority and returned to AWC staff.

Application for issue of MPTF

6. Organisation conducting the flight (Applicant). As AWC is the MAO under which the flight test activity will occur, appropriate AWC staff raise a DASR Form 21 and submit to the DoSA-FT requesting issue of the MPTF. This generally occurs coincident with the application for flight conditions.

7. Issue of MPTF. A Category 2 flight test MPTF may only be issued by a DoSA-FT. The AWC MPTF process supports direct forwarding of the application to the DoSA-FT for assurance review and issue.

Scenario: Bespoke minor modification for in-service Defence aircraft by a DASR MDO

(g) A DASR MDO has been engaged by a CASG sustainment SPO to design and certify a minor modification to an in-service aircraft. Developmental flights for modification testing and generation of compliance demonstration evidence are to be conducted by ADF test aircrew under the aircraft MAO's control prior to approval of the modification as a minor design under the MDOA's privilege.

Application for approval of Flight Conditions

1. **Determination that MPTF is needed (Applicant).** The SPO, in conjunction with the aircraft's MAO / CAMO, determine the flight test category as Category 4 IAWDASR.FT.05; hence an MPTF is required. A Category 4 test can be conducted within the aircraft MAO's control, with this MAO / CAMO being best-placed to be the applicant for flight conditions and the MPTF.

Superseded

2. **Technical substantiation.** The SPO, through liaison with the MDO during the development phase, has obtained Type Design documentation completed up to this point, including completion of compliance demonstration for all findings not related to flight test. These documents are formal in nature, signed IAW the MDO procedures, and include identification of, and justification for, flight conditions required for safe flight during the development and compliance demonstration testing.

3. **Operational substantiation.** As a Category 4 test activity, operational substantiation and endorsement must be provided by a competent member of the MAO, as determined by a DoSA-FT. In this case, the selected member reviews and endorses the adequacy of the flight conditions. The operational inputs to the flight conditions are derived from the technical substantiation, plus the operational planning (i.e. test risk management) activities and are collated within an appropriate document (such as a Flight Test Plan) by the MAO test staff.

4. **Declaration of Safety.** A MAO / CAMO staff member (such as the CAM or other authorised staff member) collates technical substantiation from the MDO (via the SPO) and operational substantiation and endorsement from the MAO staff member authorised by the DoSA-FT, signs the Declaration of Safety on DASR Form 18b and submits to the Authority for approval.

5. **Approval of Flight Conditions.** The Authority (DASA desk officer or platform-aligned DoSA) receives the application and conducts assurance review and approval. The Form 18b is signed by the Authority (or platform-aligned DoSA) and returned to the MAO / CAMO for use in the MPTF application.
Application for issue of MPTF

6. **Organisation conducting the flight (Applicant).** MAO staff under which the flight test activity will occur raise a DASR Form 21 and submit to the Authority (or platform-aligned DoSA) requesting issue of the MPTF. This step may occur coincident with the application for flight conditions.

7. **Issue of MPTF.** A Category 4 flight test MPTF may be issued by the Authority (or DoSA with appropriately-scoped MPTF delegation). The Authority (or platform-aligned DoSA) processes the Form 21 and issues an MPTF (Form 20b) to the requesting MAO staff.

Category – MCoA temporarily invalid for technical/compliance reasons

Scenario: Aircraft damage in remote unsupported location

(h) A transport aircraft in a remote location has sustained structural damage outside limits published within the Structural Repair Manual (SRM), which has rendered the Military Certificate of Airworthiness (MCoA) invalid. Repair of the damage at the remote location is considered impractical due to the level of equipment/facilities required to conduct the repair and MDO approval of unrepaired damage is not supported.

Application for approval of Flight Conditions

1. **Determination that MPTF is needed (Applicant).** The damage is outside of the Instructions for Continuing Airworthiness (ICA) limits and is considered to impact flight safety. The MAO (through its CAMO) determines that in-location repair is not practicable and hence an MPTF is needed to ferry the aircraft to a suitable repair

Superseded

venue. In this case, the CAMO is the most-appropriate applicant for approval of flight conditions.

2. **Technical substantiation.** The CAMO requests an engineering organisation with appropriate aircraft knowledge to provide a technical substantiation that the aircraft is safe to fly. The engineering analysis determines the aircraft can fly safely when subject to a number of limitations (e.g. pre-flight inspection, post take-off controllability check, straight and level flight while in transit, etc). This information is provided to the CAMO as formally-approved engineering advice/report.

3. **Operational substantiation.** The flight conditions contained within the engineering advice are reviewed and endorsed by an authorised MAO staff member. The review confirms the flight conditions in the engineering substantiation are deemed appropriate and also identifies additional operational conditions (e.g. a CAT B or higher aircrew to fly the aircraft, single aircrew only, etc).

4. **Declaration of Safety.** Upon obtaining technical substantiation and operational endorsement of the proposed flight conditions, the MAO Accountable Manager (or authorised representative) makes a declaration that the aircraft is safe to fly in the configuration and subject to the proposed flight conditions. The declaration is made, and signed for, on DASR Form 18b, then submitted to the Authority for approval.

5. **Approval of flight conditions.** The Authority (DASA desk officer or platform-aligned DoSA) receives the application and conducts assurance review and approval. The Form 18b is signed by the Authority (or DoSA) and returned to the MAO / CAMO for use in the MPTF application.

Application for issue of MPTF

6. **Organisation conducting the flight (Applicant).** As the MAO has the need to ferry its aircraft for repair, the CAMO applies for the MPTF using DASR Form 21. Part of that application is the requirement to provide reference to the approved flight conditions established and approved on Form 18b. This step may occur concurrently with the application for flight conditions.

7. **Issue of MPTF.** Upon receipt of the Form 21, DASA staff (or platform-aligned DoSA) conduct assurance review and approval. If satisfied the MPTF is issued on a Form 20a to the applicant.

Scenario: Continued operations beyond an Airworthiness Limit

(i) An aircraft has made an unplanned landing at an away-base location, giving rise to the situation whereby a scheduled servicing linked to an Airworthiness Limitation (AwL) is now due. The servicing cannot be performed away-base, which has rendered the MCoA invalid. In this scenario, whilst initially considered, temporary extension of the AwL for this individual aircraft via DASR 21.A.445 unrepaired damage provisions (see also para 16 below) was deemed to not apply, for it was not possible to demonstrate that the temporary extension of the AwL in this instance (and any additional maintenance actions to support) was within the risk inherent in the TCB (and thus an elevated level of risk is present).

Application for approval of Flight Conditions

1. **Determination that MPTF is needed (Applicant).** An MPTF is required, since in this case, the Aircraft Maintenance Programme (AMP) cannot be complied with, and an AwL extension is not within the scope of the CAMO's authority. The MAO (through its

Superseded

CAMO), who has the need to ferry the aircraft to a maintenance venue, should apply for an MPTF.

2. **Technical substantiation.** The CAMO requests an engineering organisation with appropriate aircraft knowledge to provide an engineering determination that the aircraft is safe to fly. In this case, the engineering analysis determines the aircraft can fly safely when subject to a number of limitations (e.g. additional pre-flight inspections and minor maintenance actions) and provide this information to the CAMO as formally approved engineering advice/report (note this is not an approved design, which would restore the extended interval to an approved configuration, hence negating the need for an MPTF).

3. **Operational substantiation.** The flight conditions contained within the engineering advice are reviewed and endorsed by an authorised MAO staff member. The review confirms the flight conditions are deemed appropriate and no additional operational conditions would practicably improve the safety of the flight.

4. **Declaration of Safety.** Upon obtaining technical substantiation and operational endorsement of the proposed flight conditions, the MAO (through the CAM or other authorised representative) makes a declaration that the aircraft is safe to fly in the configuration (i.e. with overdue maintenance) subject to the proposed flight conditions. The declaration is made, and signed for, on DASR Form 18b, then submitted to the Authority for approval.

5. **Approval of flight conditions.** The Authority (DASA desk officer or platform-aligned DoSA) receives the application and conducts the assurance review and approval. The Form 18b is signed by the Authority (or platform-aligned DoSA) and returned to the MAO / CAMO for use in the MPTF application.

Application for issue of MPTF

6. **Organisation conducting the flight (Applicant).** As the MAO has the need to ferry its aircraft for maintenance, the CAMO applies for the MPTF using DASR Form 21. Part of that application is the requirement to provide reference to the approved flight conditions established and approved on Form 18b.

7. **Issue of MPTF.** Upon receipt of the Form 21, DASA staff (or platform-aligned DoSA) conduct assurance review and approval. If satisfied the MPTF is issued on a Form 20a to the applicant.

Category – MCoA yet to be issued

(j) DASR 21.A.701(a) includes potential circumstances requiring an MPTF, for instances where an MCoA is yet to be issued:

1. Development
2. Demonstration of compliance
3. Design organisation or production organisation crew training
4. Flight testing of new production aircraft
5. Flying aircraft under production between production facilities

Superseded

6. Flying the aircraft for customer acceptance

7. Delivering or exporting the aircraft

8. Flying the aircraft for Authority acceptance

9. Market survey, including customer's crew training.

(k) These scenarios are largely associated with the exercise of MDOA/MPOA privileges for flight conditions approval and issue of an MPTF. The likelihood of these scenarios occurring within the DASR context is very low, compared to the flight test and invalid CoA scenarios. Hence no specific examples for this category are provided within this annex.

(l) Should an MPTF be required in one of these scenarios the prospective applicant should contact DASA for further guidance.

Examples where an MPTF is not required

Scenario: New aircraft development for Defence by overseas OEM

(m) An overseas OEM has been contracted to design and certify a tanker aircraft capable of supporting probe-and-drogue and boom re-fuelling. Development includes a major modification to an existing transport aircraft. Developmental flights for product testing and generation of compliance demonstration evidence are to be conducted by the OEM prior to certification by the State of Design.

Discussion

(n) The design and testing occurs under the Authority of the State of Design and IAW the OEM's own Design Organisation flight test arrangements. As such, despite the aircraft being developed specifically for Defence use, the aircraft has not yet been delivered to the Commonwealth, is not on the Defence register, and the flights for development and demonstration of compliance evidence occur outside of DASA's framework. In this case no MPTF is needed.

(o) If required, Defence aircrew may be involved in the OEM testing activity, with their involvement supported via specific Authority (Defence)-to-Authority (State of Design) agreement (external to DASR scope).

Scenario: Unrepaired damage

(p) An aircraft in a remote location has sustained structural damage outside limits published in the SRM that has rendered the MCoA invalid. Full repair of the damage at the remote location is considered impractical due to the level of equipment/facilities required to conduct the repair; however, the CAMO has approached a relevant MDO, that has advised they can provide approval for unrepaired damage subject to suitable limitations IAW DASR 21.A.445 *Unrepaired Damage*. See also Chapter 7.X Annex D, Scenario 4.

Discussion

(q) If the CAMO is able to source a repair (with unrepaired damage assessment) from a relevant MDO (i.e. an MDO with the scope to apply for and hold repairs for the aircraft type) then the aircraft's MCoA is re-validated. In this case, the DASR 21.A.445 unrepaired damage provision allows for damage to remain unrepaired where other limitations (that are defined as part of

Superseded

the repair) account for any repair shortfalls. In these cases DASR 21.A.445 requires either the Authority, or appropriately-authorised design organisation to assess the unrepaired damage for airworthiness implications. Once the CAMO has both the repair design and airworthiness assessment, the CAMO can release the aircraft for flight IAW the stated limitations. No MPTF is needed.

Scenario: Aircrew work-up per ICA

(r) A MAO is conducting aircrew work-up on a new aircraft type, inclusive of missile firings on an overseas test range to meet the Initial Operating Capability (IOC) schedule. The aircraft have been recently procured, are on the Defence register and have an MTC and valid MCoA.

Discussion

(s) The aircraft type has valid MCoAs for individual aircraft, and are being operated IAW ICA (such as stores loading manuals, aircraft flight manuals, and maintenance publications). Furthermore, the flight profiles being tested/worked-up are within the MAO's approved mission risk profiles. In this case, the aircraft are flying within the bounds of approved technical and operational data. There is no requirement for a MPTF.

Superseded

Annex C - Successful Applications for Approval Of Flight Conditions and MPTFs

Aim

(a) Annex C provides guidance to personnel who are providing input to, or developing applications for, approval of Flight Conditions and Military Permits to Fly (MPTF). This annex identifies good practices, and discusses how to avoid common issues, to support applicants in developing a credible and defensible submission likely to have minimal need for clarification or re-work. This is especially important when a short turnaround is required to meet capability imperatives.

Introduction

(b) Since the introduction of DASRs, DASA has issued MPTFs for a broad range of flying activities, spanning single short-notice ferry flights to a suitable maintenance venue, to primary authorisations for aircraft not yet certified. In many cases these have required a quick turn-around, both from the applicant and the Authority, to support capability imperatives. During this time, DASA has identified a number of common issues with applications for Flight Conditions and MPTFs that reduce the credibility and defensibility of the 'decision-to-proceed' with an activity, resulting in delays to approvals, or the need for re-work. This annex has been developed to provide guidance on how to avoid these common issues.

General Guidance on Developing Applications

Role of the Operator

(c) An MPTF is required because an Operator needs to fly an aircraft that does not meet the applicable airworthiness or aviation safety requirements. While non-compliances against airworthiness requirements are often technical in nature, and technical support will be required from the Military Type Certificate Holder (MTCH) or a relevant design organisation, the MPTF is ultimately an operational authorisation.

1. **Good practice:** Ensuring that the application focuses on understanding and managing the risk to safe flight operations and that the application has clear input from both suitably-knowledgeable technical personnel and the Operator.

2. **Common issue:** Providing a design-centric document with a final Operator signature. Often Risk decision briefs lack the operational 'so what' of a technical issue. This makes it difficult to fully appreciate the risks associated with a technical issue.

Prioritising Risk Management

(d) Applications for approval of flight conditions and MPTFs must include the seven-step risk management process documented clearly, concisely and completely, with both technical and operational input. The risk management for the non-compliance with applicable airworthiness or aviation safety requirements (and the documentation of that risk management) must be completed before developing the applications for Flight Conditions and MPTFs.

1. **Good practices:**

Superseded

i. Focusing on completing and documenting credible and defensible risk management for the identified issue before commencing an application.

ii. Ensuring that the risk assessment clearly addresses the seven steps and that work completed by the applicant is linked to the relevant steps.

iii. Ensuring that the proposed flight conditions and/or restrictions in the applications are clearly linked to the outcomes of the seven-step risk management process. That is, controls that have been identified as reasonably practicable in the seven-step process must then be translated into the conditions and/or restrictions for the Flight Conditions and MPTF.

2. **Common issues:**

i. Developing the risk management and resulting documentation solely for the applications.

ii. Developing risk documentation with the sole or primary intent of satisfying the Authority. The focus of the risk management (and associated documentation) is to manage the risk (IAW WHS requirements).

iii. Deciding on the flight conditions prior to completing the risk management and then attempting to 'reverse engineer' the risk management process to support the pre-determined outcome.

iv. Providing a collection of disparate documents or pieces of evidence without providing an overarching narrative or linking to the seven-step process.

– Applications presented in this way often experience delays while the Authority attempts to understand the material provided and/or seeks clarification from the applicant. In some cases it is not ultimately possible to confirm that such an application presents a credible and defensible basis to proceed with the activity.

– DASA has found that when applicants submit a collection of documents not integrated by a single overarching risk management document the likelihood of other errors and omissions in the documentation increases significantly.

Co-ordination Between Technical and Operational Assessments

(e) Applications must provide operational and technical assessments that are co-ordinated. Note, the assessments may differ in places but those differences are always identified and explained in the application.

1. **Good practice:** Developing a single assessment that considers both technical and operational perspectives is best practice. Where this is not practical, it is good practice to provide an operational perspective on the technical assessment. This should explain why recommended controls might not be reasonably practicable from the operational perspective, or why the risk is different in the operational context.

i. **Example:** The technical assessment may recommend that a control, such as 'only one person allowed near equipment during operation' be implemented. The operational assessment determines that this control is not reasonably practicable based on the capability imperative for the task. The technical assessment does not need to be changed, but the operational assessment

Superseded

needs to clearly show that the control has been considered and assessed as not reasonably practicable, and then the impacts on the remainder of the assessment also need to be considered (i.e. are there other controls that now become reasonably practicable instead and does the risk characterisation change).

2. **Common issues:** Providing operational and technical assessments that have differing risk levels or different controls, without clear justification for the differences. It must be clear in the application that there has been co-ordination between the two assessments rather than them being done in isolation.

Justifying the Capability Imperative

(f) The application must clearly communicate the operational context and capability imperative for operating an aircraft which does not meet airworthiness or aviation safety requirements.

1. **Good practice:** Justifying why the aircraft needs to operate despite the aircraft not satisfying the airworthiness or aviation safety requirements of DASRs. The capability imperative must establish the context for the assessment of risk controls and provide the basis for Command's 'decision-to-proceed'. Establish the minimum period for retention of the elevated level of risk.

2. **Common issues:**

i. Stating 'Directed tasking' or 'to enable operations beyond expiry of [extant MPTF]'. This is unlikely to be defensible as it does not provide the detail needed to understand the context of the risk management or to justify a decision-to-proceed.

ii. Submitting an application that does not match the stated capability imperative. For example, stating the capability imperative is that the aircraft must be returned to home base, but requesting an MPTF for 12 months. In this case the decision-to-proceed is unlikely to be defensible.

Timelines, Urgency and Validity Periods for MPTFs

Extensions to Existing MPTFs

(g) Justification is required for applications looking to 'extend' existing permits/authorisations. The updated application must provide detail on why the MPTF is still required and why it was not possible to resolve the issue or gain a permanent approval in the original timeframe. For example, if a MPTF was issued for 12 months to enable certification activities to be completed, and 12 months later it is being extended, there needs to be explanation for why certification activities were unable to be completed in the original timeframe, and what is being done to ensure that they will be completed as soon as practicable (noting that completion of the certification is a risk control and therefore should be completed as soon as reasonable practicable).

1. **Good practice:**

i. Reconfirming that the capability imperative remains valid for the context and timeframe of the 'extension'. This requires confirmation that the requirement to operate with the identified non-compliance(s)/risk remains valid, taking into account the delays to the original timeframe.

Superseded

ii. Reassessing the risk characterisation in light of the new context, new information received, additional work performed and the new exposure period.

iii. Reassessing the risk controls to confirm existing controls have proven effective, and to identify whether any new controls, or controls previously not reasonably practicable or available, are now able to be implemented.

2. **Common issues:** Submitting the same application that was originally provided, with just a change to the dates and no detail or substantiation relating to the delay. The delay will always change the context of the application and, as such, not considering this changed context will not be credible or defensible.

Scaling Applications

(h) The scope and timeframe of the requested authorisation must be constrained to match the capability imperative and timeframes available.

1. **Good practice:** Limiting the scope and duration of an urgent application to only what is necessary for the urgent task. If there is a need for greater scope and duration after the initial activity, this can be provided in a subsequent application, which allows for appropriate 'ensure' and 'assure' activities to occur.

i. **Example.** An MPTF is required to enable a ferry activity in the next few hours to get an aircraft back to home base. However, it is expected that the aircraft will continue to operate in the same configuration for the next 12 months. An initial application can be provided which allows for only ferry, which is of limited duration and allows a limited scope of flying, to support the immediate task. This will constrain the risk context associated with the permit/ authorisation and align that risk context with the reduced time for both 'ensure' and 'assure' activities to occur. Once the initial permit is provided, an expanded application can be completed, covering the risk for the greater timeframe and greater scope of flying, with appropriately scaled assessment and substantiation.

2. **Common issues:** Submitting an application requesting a large scope and timeframe, where there is an urgent capability imperative which limits the ability to develop full substantiation for that scope, or which limits the time available to review the full scope of the application.

i. Example. An MPTF is required in 3-4 hours, to conduct a transit flight based on an urgent capability imperative. The applicant submits an application for a 12 month permit/authorisation to conduct the full scope of aircraft operations as detailed in the Statement of Operating Intent and Usage (SOIU). It is unlikely that the applicant has adequately completed 'ensure' activities to support a 12 month permit/authorisation in such a reduced timeframe, and work on both the applicant and Authority side to assess this 'full-scope' application, instead of solely focusing on the scope required for the urgent task, will likely cause delays.

Commencing Work Early

(i) Work on risk management (IAW the seven-step risk management process) and applications for Flight Conditions and MPTFs should commence as soon as the need is identified. Often the

Superseded

non-compliance with airworthiness or aviation safety requirements creating a risk and resulting in a need for an MPTF can be forecast well in advance.

(j) Planned deliveries of new aircraft, integration of modifications prior to certification, and operation of aircraft with expired Airworthiness Limitations (AwLs) due to logistics shortfalls, are common examples of situations where the issue requiring an MPTF is not a surprise. Completing risk management and applications for respective authorisations only once the need and timeframe are critical will often lead to a flawed approach which is unlikely to be credible and defensible.

1. **Good practice:** Commencing work on risk management and the applications when the issue is identified.

2. **Common issues:** Waiting until the need for the MPTF is critical before commencing development. This approach often leads to flawed risk management, where the operational and technical activities are already 'locked in' and the resulting risk management is merely intended to justify what is already being done. This routinely results in:

   i. Controls commonly used in these circumstances across Defence aviation not being identified nor considered.

   ii. Appropriate subject matter experts not consulted or if consulted, provided insufficient time to provide adequate advice.

   iii. Risk management documentation that is rushed, poorly integrated and contains errors and omissions.

(k) **Note:** Applications developed at the last-minute will often identify that controls are not reasonably practicable to implement at that late stage due to lack of time. This may appear to be justifiable at the time of the application, and therefore support a claim that the risk has been eliminated or otherwise minimised So Far As in Reasonably Practicable (SFARP). However, if an unnecessary delay in commencing the risk management process resulted in a reduction in the reasonably-practicable controls, the applicant must be aware that defensibility and credibility of their position may be reduced in the event of an occurrence.

Justifying the Urgency

(l) The Authority appreciates that short turn-around applications are sometimes necessary to support capability imperatives. In order to be able to appropriately prioritise resources across a range of platforms and activities, it is important for DASA to understand the priorities and urgencies for each, to provide the best support possible. As such, when a short turnaround is required for an application, the reason for the urgency and the need date must be clearly established.

1. Good practice:

   i. Engaging the Authority at the earliest opportunity if a short turnaround application is expected, to allow the Authority to identify resources to support.

   ii. Ensuring that urgent/high-priority applications are able to be supported within the applicant organisation. If an application has an extremely-high priority, submit as soon as possible and ensure that key people are able to support any

Superseded

queries or requests for additional information in line with the priority of the application.

2. Common issues: Altering the priority, submission dates or need dates for an application without keeping the Authority informed. This impacts the Authority's ability to provide timely support for the application.

Risk Management Documentation

(m) Applications and the supporting documentation must detail the full range of considerations or actions (e.g. information gathering, consultation, assessments, implementation of risk controls) taken as part of the risk management.

1. **Good practice:**

   i. Documenting all credible risk controls that were considered, not simply those that were determined to be reasonably practicable. Often applications fail to provide full detail on controls that were considered, or why a control was considered not reasonably practicable. If these considerations are not documented, confidence that the seven-step risk management process was completed appropriately will not be possible from a desktop review.

   ii. Providing full reasoning for the risk characterisation.

   iii. Documenting all actions that will be undertaken to control the risk, even if they appear obvious, or are part of 'standard practices'. An independent reviewer will not necessarily be familiar with local procedures for every Unit. As such, if there are standard activities that are undertaken within a Unit that are relevant to the application and managing the risk, this must be documented in the application to ensure that the application provides a credible and defensible basis for proceeding.

   iv. Documenting any Orders, Instructions and Publications (OIP) changes and/or training that must be implemented to support the operation under the MPTF (e.g. for an aircraft that is in a different configuration to the remainder of the fleet and needs to be operated differently).

2. **Common issues:**

   i. Stating that a risk is 'Medium' before a control is implemented, and 'Low' after a control is implemented, without explaining how the control has impacted on the risk to result in a change to 'Low'.

   ii. Stating that a risk is [X] level without providing the justification for that characterisation.

   iii. Stating a risk level that does not align with the justification or analysis provided.

   iv. Not identifying all the credible hazards related to the technical issues.

Risk Controls and Flight Conditions

Superseded

(n) Risk assessments must be complete before an application is submitted, and controls that have been assessed as reasonably practicable must be included in the proposed Flight Conditions.

1. **Good practice:**

   i. Ensuring that all required assessments have been completed prior to finalising an application, so that the risk is understood and reasonably-practicable controls have been identified[1].

      – The application should not suggest that an assessment or other activity will be done to identify controls at a later date. This must be done prior to applying for the Flight Conditions. If an assessment is not able to occur until just before the MPTF is required, the Authority can be engaged with drafts of the applications to enable an expedited turn-around after the final activities are complete.

      – **Example.** The Flight Conditions can require an activity (such as EMI/EMC testing or maintenance check flights) to be completed to confirm the validity of the risk assessment completed (i.e. to confirm that a hazard is not present), but these activities cannot be used to identify hazards or new risk controls. For example, 'EMI/EMC testing must be completed to confirm nil interference' is a valid control, however 'EMI/EMC testing must be completed to identify impacted systems' is not a valid control.

   ii. Ensuring that all reasonably-practicable controls have been implemented (or will be implemented prior to flight).

2. **Common issues:**

   i. Stating that a control is reasonably practicable, but not implemented. If this is true, then the risk has not been eliminated or otherwise minimised SFARP, and the activity should not proceed.

      – **Note:** It may be possible for a control to be reasonably practicable in the future, but not reasonably practicable immediately. This must be made clear in the submission, including the justification for why it is not reasonably practicable immediately, the timeframe when it will become reasonably practicable, and how it will be tracked to ensure it is implemented once it is reasonably practicable.

   ii. Relying upon controls implemented through other documents (such as Flying Orders) without those other documents being controlled through the approved Flight Conditions[2]. The approval of Flight Conditions and MPTFs are Authority-issued authorisations, and they are issued on the basis of the controls that have been implemented. It is not possible to issue these authorisations on the basis of controls that are being managed separately to the authorisation (e.g. on the basis of a Flying Order which is being managed and updated separately to the approved Flight Conditions/MPTF). If controls change, new Flight Conditions and a new MPTF will be required.

Superseded

7.1 Introduction

7.1.1 Background

7.1.1.1 While there is no internationally-accepted definition for Initial Airworthiness, common definitions for 'initial' (happening at the beginning) and 'airworthiness' (the fact of an aircraft being safe to fly) are helpful. After all, Initial Airworthiness does indeed focus extensively on whether a new aircraft is initially safe to fly - that is, whether it has been suitably designed and manufactured.

7.1.1.2 However, by convention, Initial Airworthiness also encompasses any design changes subsequently made to the new aircraft (including the certification of those changes) and the design of repairs. Furthermore, it includes the activities needed to ensure the design remains safe throughout its lifecycle, although this activity is often termed 'continued' airworthiness (not to be confused with 'continuing' airworthiness, per chapter 8).

7.1.1.3 This chapter presents an overview of the DASR approach to aircraft design, production and certification, which are the activities commonly associated with initial and continued airworthiness. The subsequent chapters will then explore several of these concepts in more detail.

7.1.1.4 Note this chapter is relevant only to Defence Registered aircraft; for non-Defence Registered aircraft, all initial and continued airworthiness functions are conducted per the requirements of the relevant Civil or military Aviation Authority (normally CASA).

7.1.2 DASR 21 – Aircraft Design, Production and Certification

7.1.2.1 From an Initial and Continued Airworthiness (INCA) perspective, an aircraft's lifecycle might follow a progression something like this:

a. To start, an engineering organisation demonstrates its professional ability to produce an aircraft design ('design organisation approval').

b. Next, the organisation produces a new aircraft design, and an Aviation Authority certifies that the design is suitably safe ('aircraft design and certification').

c. Individual aircraft are then produced, and an Aviation Authority certifies each as conforming to the certified design ('aircraft production and certification').

d. Over the following decades of fleet operation, numerous Minor and Major design changes and repairs will be made to the aircraft ('aircraft design changes and repairs').

e. Occasionally, there may be a need for limited flying of a possibly unairworthy aircraft, either to demonstrate a new capability or to avoid grounding an important asset ('permit to fly').

Superseded

f. Critically, throughout this complex lifecycle, an engineering organisation will need to monitor for defects in the design, facilitate risk management of the design, and so on ('type certificate holder').

g. Finally, an Aviation Authority might occasionally mandate certain remediation actions in the interests of fleet safety ('airworthiness directives').

7.1.2.2 Each of these seven functions, and several others, is regulated under DASR Pt 21– *Aircraft Design, Production and Certification.* The remainder of this chapter provides a brief summary of these functions.

7.1.2.3 **Design organisation approval.** Deficiencies in an aircraft's design can range from those with immediate catastrophic consequences (eg inadequate structural strength), to an erosion of safety margins (eg misleading navigation information), to an annoyance (eg a Minor human-machine interface flaw). Designing an aircraft where risks have been eliminated or otherwise minimised so far as is reasonably practicable (SFARP) is a particularly complex endeavour.

7.1.2.4 Consequently, the initial design of Defence aircraft should only be undertaken by skilled individuals within professional aircraft design organisations. DASRs make provision for DASA to issue Military Design Organisation Approval (MDOA) status to organisations who have demonstrated that they are able to maintain a design assurance system for the control and supervision of the design, and of design changes, of aircraft products, parts and appliances.

7.1.2.5 DASA's default expectation is that a new Defence aircraft will be designed by a MDOA of suitable scope. As a matter of pragmatism, however, DASR also make provision for Defence to accept designs that have been certified by a DASA-recognised civil or military Aviation Authority (CAA/MAA), without the need for the design organisation to be a DASA-approved MDOA, within certain bounds. This approach, often called 'prior acceptance' is explored in Chapter 7.2, *Product Certification*. These same provisions apply for design changes to an extant aircraft.

7.1.2.6 MDOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.7 **Initial aircraft design and certification.** Defence periodically acquires aircraft to meet a capability need. In practice, Defence usually acquires its new aircraft as off-the-shelf designs, and then incorporates design changes to cater for Defence's unique roles and operating environment. The entire design will meet a set of airworthiness requirements - commonly called a Type Certification Basis (TCB) - and the designer(s) will produce extensive evidence (via analysis, test and other means) to demonstrate that their design meets the TCB.

7.1.2.8 As noted in paragraph 7.1.2.5, these designs will be produced by a DASA-approved MDOA, or a design organisation whose design is certified by a DASA-recognised CAA/MAA, or sometimes both. Regardless, the final design will always be certified by DASA, signified by the issue of a Military Type Certificate (MTC)[1] for the aircraft.

7.1.2.9 In the absence of a pertinent CAA/MAA certification, DASA's certification for a new aircraft would be an immense undertaking for both DASA and the Defence acquisition organisation. More commonly, however, there will be a pertinent CAA/MAA certification, and leveraging off this certification can substantially reduce the impost on both organisations. In that case, much of the effort focuses on whether the certified design is compatible with Defence's intended Configuration, Role and Environment (CRE). Chapter 7.2, Product Certification, explores the certification process in detail.

Superseded

7.1.2.10 **Aircraft production and certification.** An expertly designed and certified aircraft provides the basis for safe aircraft operation. However, just as importantly, that design must be accurately implemented on the Defence aircraft.

7.1.2.11 DASR make provision for DASA to issue a Military Production Organisation Approval (MPOA) to an organisation when assured they have the ability to manufacture aircraft parts and appliances in conformity with approved data. DASR also make provision for Defence to accept an aircraft produced under the systems of a DASA-recognised CAA/MAA. This latter approach is used for most new Defence aircraft.

7.1.2.112 Following production of an individual aircraft, DASA must certify that the aircraft is in a state of airworthiness per the inherent level of safety specified on the MTC. This certification is signified by the DASA issue of a Military Certificate of Airworthiness (MCoA)[2] for each individual Defence aircraft.

7.1.2.13 Aircraft production and MCoAs are explored in Chapter 7.3, Production. MPOAs are explored in Chapter 7.6, Design and Production Organisations.

7.1.2.14 **Aircraft design changes and repairs.** Defence aircraft will usually be in service for several decades. During this time, numerous design changes will inevitably be implemented, either to enhance military capability or to address design or obsolescence problems. These design changes are classified under DASR as either Minor of Major, differentiated by the degree of airworthiness effect of the design change.

7.1.2.15 The DASR approach for Minor and Major design changes is very similar. They will both be performed by a DASA-approved MDOA or another design organisation whose design is certified by a recognised CAA/MAA, and both should preserve the level of airworthiness of the aircraft. For Major design changes, however, DASA will usually provide a proportionate level of independent assurance, and DASA itself will usually certify the design as safe. This certification is usually via an amendment to the MTC, although occasionally a Military Supplemental Type Certificate (MSTC) may be issued. Chapter 7.2, Product Certification, explores the certification process in detail.

7.1.2.16 Throughout an aircraft's life, degradation (damage) of the systems/structures integrity supporting safe flight may be compromised through direct (accidental impact and battle damage) overload, or insidious (fatigue, corrosion, moisture ingress, dis-bond, ultraviolet light etc) environmental sources. Repairs are those actions developed and implemented to restore damaged products to a suitably airworthy state. Similar to aircraft design changes, aircraft repairs are classified under DASR as Minor or Major, must be designed by a MDOA or other organisation agreed by DASA, and may be subjected to a proportionate level of DASA independent assurance.

7.1.2.17 **Permit to fly.** A Military Permit to Fly (MPTF) may be issued by DASA for an aircraft that does not meet, or has not been shown to meet, the requirements of its TCB, but is nonetheless capable of safe flight under defined conditions and for specified purposes. MPTFs are most commonly used for flight test (for aircraft development or role expansion activities), for flights where the design has not yet been certified, or for flights where the aircraft temporarily does not conform to the Type Design (eg due to unrepaired damaged, overdue maintenance, etc).

7.1.2.18 An MPTF may or may not entail an elevated level of risk, and is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application. Chapter 7.5, Flight Conditions and Military Permits to Fly, explores this in more detail.

Superseded

7.1.2.19 **Type certificate holder.** As noted earlier in this chapter, DASA issues an MTC for Defence Registered aircraft types. This MTC is issued to a suitable Commonwealth government organisation (usually the relevant Defence Systems Program Office), who are then charged with 'holding' the MTC.

7.1.2.20 Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed, and the level of safety inherent in the TCB is maintained. This includes, for a particular aircraft type, collecting aviation safety information (both locally and from external sources), ensuring operators are aware of extant hazards, ensuring that essential risk controls remain effective, leading local efforts to eliminate or further minimise known risks, and many other important roles.

7.1.2.21 These expansive holding responsibilities are often beyond the capacity and capability of the government organisation holding the MTC. Consequently, responsibility for the conduct of MTCH obligations is often vested with various support organisations, for example contractors, foreign project offices and other military operators. The government organisation remains accountable for all activities undertaken by those organisations.

7.1.2.22 Chapter 7.4, Continued Airworthiness, explores the MTCH role in more detail.

7.1.2.23 **Airworthiness directives.** In the Australian Defence context, the WHS Act and DASR place responsibility and obligation solely on the regulated community for managing the day-to-day safety of their aircraft, and for ensuring risks are eliminated or otherwise minimised so far as is reasonably practicable. DASR do, however, still make provision for DASA to mandate actions and/or impose conditions on aircraft operation in certain circumstances. This is achieved through the issue of an Airworthiness Directive (AD).

7.1.2.24 Like its civil counterpart, ADs under DASR provide a means to mandate an action in order to restore an aircraft to an acceptable level of safety, where that safety level may be otherwise compromised. However, due to Defence's unique context, DASA issues ADs infrequently, particularly in comparison to civil aviation.

7.1.2.25 Chapter 7.4, Continued Airworthiness, explores DASR ADs in more detail.

7.1.2.26 **Other.** In addition to the seven common INCA functions mentioned above, DASR 21 also makes provision for a number of niche functions. Since this chapter aims to provide an overview of INCA that is consumable to a wide audience, these niche functions will not be explored here. They include: Australian Military Technical Standard Order (AUSMTSO) authorisations, restricted type certificates, restricted certificates of airworthiness, approval of parts and appliances, and the identification of parts and appliances.

Structure of these chapters

7.1.2.27 This chapter has provided a brief overview of the functions encompassed within Initial and Continued Airworthiness. The subsequent chapters explore several of these functions in greater detail, as follows:

a. Chapter 7.2: Product certification

b. Chapter 7.3: Production and military certificates of airworthiness

c. Chapter 7.4: Continued airworthiness (including military type certificate holders, occurrence reporting, airworthiness directives and other organisational approvals)

d. Chapter 7.5: Flight conditions and military permits to fly

Superseded

e. Chapter 7.6: Design and production organisations.

7.2 Product Certification

7.2.1 – Introduction

7.2.1.1. Product certification authorisations represent DASA's assurance that an individual product complies with the applicable airworthiness[3] requirements. These are issued following review of compliance evidence presented by the applicant seeking product certification. Product certification authorisations covered under this chapter are MTCs, Changes to MTCs, MSTCs, and Repair Designs.

7.2.1.2. Product certification authorisations are built around four pillars of safety assurance; Organisational Capability, Compliance demonstration, Compliance Verification, and Obligations of the holder

7.2.1.3. **Organisational Capability.** Before an organisation can apply for a product certification, they need to be eligible. Eligibility is based on an assessment of whether the organisation is equipped/ resourced to achieve a successful authorisation.

7.2.1.4. **Compliance Demonstration.** The applicant for a product certification authorisation must show that their product complies with the applicable airworthiness requirements.

7.2.1.5. **Compliance Verification.** The authority must independently verify that compliance has been achieved to the applicable airworthiness requirements. As compliance demonstration and compliance verification are intrinsically linked, a certification programme is put in place to document the means by which the applicant will demonstrate compliance and the authority will verify compliance.

7.2.1.6. **Obligations of the Holder.** Following issue of a certification approval, the certificate holder must continue to carry out obligations outlined under the DASRs to ensure the product certification remains safe.

7.2.1.7. The following sections expand upon these safety assurance areas for each product certification authorisation.

7.2.2 – Type Certification – Military Type Certificates (DASR 21 Subpart B)

Overview

7.2.2.1 **Scope of Section.** Section 7.2.2 describes the DASR type certification process for obtaining a Military Type Certificate (MTC). Military Restricted Type Certificates (MRTCs) are not yet employed by DASA, and are not addressed herein.

7.2.2.2 **Military Type Certificate.** An MTC is issued by DASA to certify that a product's type design complies with the applicable Type Certification Basis (TCB) when operated within specified conditions and limitations. Further description of the MTC authorisation can be found in Section 5.3 Annex K.

Eligibility

Superseded

7.2.2.3 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the MTC.

7.2.2.4 DASR 21.A.13 (Eligibility), and by extension DASR 21.A.14 (Demonstration of Capability), define which organisations can apply for an MTC under DASR 21. As per DASR 21.A.14, applicants for an MTC can be:

1. A DASR 21 Subpart J approved Military Design Organisation (MDO) (21.A.14(a)). Holding a DASR 21J approval provides an organisation with the eligibility to apply directly to DASA for an MTC. However, given the scope of the Australian aviation industry, development and certification of a new aircraft wholly under a DASR 21J MDO will be a rare occurrence.

2. An organisation demonstrating its capability through alternative procedures (21.A.14(b)). An applicant may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. This eligibility provision is ostensibly aimed at products with simple or limited scope of design, or organisations starting toward a MDO approval or limited duration of design activities. Use of this provision to demonstrate capability to apply for an MTC would only be considered by DASA by exception.

3. A government organisation who has an agreement in place with a design organisation that has access to the type design data (21.A.14(c)). Any government organisation applying for an MTC may demonstrate its capability by having an agreement in place, accepted by DASA, with a design organisation that has access to the necessary type design data. This is the normal provision through which DASA expects government organisations (usually the relevant CASG System Program Office (SPO)) to demonstrate their capability to apply for an MTC. The agreement with the relevant design organisation shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of Subpart J and DASR 21.A.44 (holder obligations). AMC and GM to 21.A.14(c) provide further information on demonstration of capability under this provision.

7.2.2.5 **MTC Applications by CASG SPOs (Project Offices).** To be issued an MTC by DASA, a CASG project office develops a Type Continued-Airworthiness Exposition (TCAE) for DASA review. The TCAE details the CASG arrangements with the design organisation(s) that has access to the type-design data and through which the provision of holder obligation functions occur. Further guidance on holder obligations and arrangements can be found in Section 7.4.1.

7.2.2.6 CASG project offices seeking issue of an MTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended acquisition program.

7.2.2.7 The eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J. Since a CASG project office scope of responsibility is usually limited to a single application, and does not include the through-life holder responsibilities, the CASG project office eligibility information is not required to be delivered as a single document and can instead be contained within

Superseded

Project or Acquisition documentation. The documentation requires review by DASA prior to the project office becoming eligible to act as an applicant. However, the CASG project office must include a transition plan to manage delivery of the Type Design to the MTC holder, and where the MTC holder organisation is being created, include plans for assessment of eligibility of the MTC holder, by DASA.

7.2.2.8 Additional guidance with respect to MTC applicant eligibility when CASG project offices wish to leverage recognition provisions is as follows:

1. Application will be exclusively based upon an aircraft type-design that has been certified by a recognised CAA/MAA. In this situation, the project office, in conjunction with any associated design organisation(s), can gain eligibility by demonstrating its ability to conduct the required certification programme activities (develop CPP, conduct applicability assessment against Defence context, develop the Defence TCB, and provide a declaration of compliance), rather than demonstrate full adherence to the DASR 21 Subpart J requirements.

2. Application will be based on a design that has not been certified, but was developed using a design system (organisation, people, processes, data, and tools) external to the DASR, and where that system is used to produce designs for certification by a recognised CAA/MAA. In this situation, the DASA recognition framework[4] must be leveraged by the project office to assist in demonstrating to DASA that the arrangements with the external DO provides an acceptable equivalence to the DASR 21 Subpart J requirements. Activities to meet the eligibility requirements should be completed prior to initial engagement with DASA and throughout certification programme activities. The project office is to address the following expectations in their respective eligibility submission:

   i. Confirm that the external design organisation is normally oversighted by a CAA/MAA recognised by DASA[5].

   ii. Confirm that the external design organisation has appropriate technical scope and expertise for the intended design(s).

   iii. Confirm that the systems, processes and personnel used in developing other designs for certification by the parent CAA/MAA will be used in the design development or holder activities associated with the ADF design.

   iv. Confirm that the design organisation is able to provide an attestation of compliance against the Defence TCB for any provided design product.

   Note: In some circumstances, the PO or MTC holder may wish to allow the external design organisation to engage directly with DASA for Defence TCB agreement, development and conduct of the CCP, and provision of a declaration of compliance to the Defence TCB. In this case, the eligibility documentation shall demonstrate that the external design organisation systems and process are sufficiently similar to the DASR 21J requirements to support such delegation.

   v. Confirm any expected oversight by the DO's parent CAA/MAA is appropriate.

   vi. Confirm where applicable, arrangements for DASA oversight are in place.

Superseded

vii. Articulate how the recognition arrangements as per paragraphs 7.2.2.8.(b)(iii), (iv) and (v) will be monitored and ensured during the design development and submission process[6].

Certification Programme

7.2.2.9 **Overview.** Under DASR 21, a certification programme is required for all applications for an MTC, and the certification programme requires formal acceptance by DASA.

7.2.2.10 The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a Certification Program Plan (CPP).

7.2.2.11 Two CPP templates are published on the DASA Website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the MTC CPP template.

7.2.2.12 The organisation(s) involved in the development and submission of a certification program for an MTC application will vary depending upon the acquisition arrangements. GM1 21.A.15(b) provides further guidance based on some common acquisition scenarios.

7.2.2.13 **Contents of a Certification Programme.** DASR 21.A.15(b) outlines the requirements for content of a certification programme for an MTC. Certification programmes must be tailored to meet the requirements of the certification activity.

7.2.2.14 The certification programme should be presented as a CPP containing the information required by DASR 21.A.15(b) and the supporting AMC. The MTC CPP template published by DASA will assist in meeting the required outcomes.

7.2.2.15 Two key outcomes are achieved through the development and DASA acceptance of the certification programme:

1. Applicant development and DASA agreement of the Defence TCB for the MTC[7].
2. Formalising and agreement on the approach to be taken for demonstrating compliance against the Defence TCB, and the DASA Level of Involvement (LoI) in compliance demonstration activities.

7.2.2.16 **Proposed Compliance Demonstration Items (CDIs)**. DASR 21.A.15(b)(5) requires that the CPP proposes a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, and a proposal for the means of compliance and related compliance documents.

7.2.2.17 A CDI is a meaningful group of compliance demonstration activities and data that can be considered, in isolation, for the purpose of performing the risk assessment that allows DASA to determine its LoI.

7.2.2.18 Applicants should follow AMC 21.A.15(b)(5) when proposing the CDIs, and the DASA MTC CPP template contains further guidance and tabular templates for presenting proposed CDIs.

7.2.2.19 **Proposed DASA LoI.** As outlined in AMC 21.A.15(b)(6), the Authority's LoI is a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range

Superseded

from spot checks to extensive reviews. DASA will respond to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'. DASR 21.A.15(b)(6) requires that the CPP proposes the DASA LoI associated with compliance demonstration activities, noting that LoI should normally be proposed at the CDI level. As per DASR 21.A.15(b)(6), the DASA LoI must address the likelihood of an unidentified non-compliance with the TCB requirements and the potential impact of that non-compliance on safety (ie a risk-based determination). In practice, this is achieved through taking into consideration:

1. any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects
2. the complexity of the design and/or demonstration of compliance
3. the criticality of the design or technology and the related safety risks, including those identified on similar designs
4. the performance and experience of the design organisation of the applicant in the domain concerned.

7.2.2.20 AMC 21.A.15(b)(6) contains a step-by-step process and extensive information that applicants should follow when determining the proposed DASA LoI. The DASA MTC CPP template also includes complementary guidance and tables. The three main steps that culminate in determining the DASA LoI are:

1. Step 1: Identification of the likelihood of an unidentified non-compliance. This includes taking into consideration novelty, complexity and the performance of the design organisation. Refer to Section 3.2 of AMC 21.A.15(b)(6) for details.
2. Step 2: Identification of the 'risk class'. This includes determining whether the potential impact of the non-compliance within a compliance demonstration activity (ie CDI) is critical or non-critical. This is then combined with the likelihood of an unidentified non-compliance (step 1) to determine the risk class. Refer to Sections 3.3-3.4 of AMC 21.A.15(b)(6) for details.
3. Step 3: Determination of the DASA LoI. Based on the qualitative risk class identified for each compliance demonstration activity (ie CDI), the applicant should propose a DASA LoI. Refer to Section 3.5 of AMC 21.A.15(b)(6) for details.

7.2.2.21 DASA will determine the depth and extent of its inspections for each CDI, based on the information provided in the certification programme and the applicant's proposal. DASA determination of LoI will be confirmed as part of DASA's acceptance of the CPP. Note that the depth and extent of DASA LoI may change throughout the project in order to account for changes that affect the basis of the initial LoI determination.

7.2.2.22 **Certification Programme Acceptance.** DASA acceptance of the certification programme is required for all MTC applications. Early engagement with DASA, and agreement on the key certification programme content, will reduce schedule and resource risks for the project. Delaying presentation of certification programmes to DASA until after compliance demonstration has commenced may result in delays, additional work, or additional resources, due to DASA:

1. determining that the proposed airworthiness requirements or means of compliance are unsuitable for the certification activity

Superseded

2. identifying a need for a LoI in compliance demonstration activities that have already been completed, therefore resulting in a need to repeat the compliance demonstration

3. identifying LoI that requires travel (eg for compliance demonstration being completed overseas) and insufficient time is available to organise funding and travel prior to the planned activity, resulting in a need to delay the activity

4. identifying a need for data access that was not accounted for prior to contracting or establishing government to government agreements for the activity, resulting in a need for contract changes or alternate workarounds.

7.2.2.23 DASA acceptance of a certification programme can be achieved incrementally, if some aspects are unknown at the beginning of the project or are expected to change throughout the project. A caveated acceptance may be possible to achieve agreement with DASA on specific aspects of the programme prior to full details being known. For an initial or caveated acceptance, the following is required:

1. identification of the applicant and any design organisations involved

2. broad detail on the design and aircraft intended use

3. an initial proposal for the TCB, including identification of the Primary Certification Code and identification of whether any TCB tailoring (including Military Certification Review Items (MCRIs)) will be required. Note: the TCB does not have to be fully defined at this point.

4. broad detail on the certification approach (i.e. whether there will be reliance on prior certification, or whether compliance demonstration evidence with be developed specifically for the DASA certification).

7.2.2.24 Where an incremental approach is taken to developing and achieving acceptance of the certification programme, the scope of acceptance intended by each version must be clearly understood and documented. A point at which the next update is required must be identified, this may be date based or linked to a specific project stage or milestone.

7.2.2.25 DASA acceptance of the certification programme will be agreed by formal communication, which will include confirmation of the DASA LoI for the activity, and any caveats on DASA acceptance.

7.2.2.26 **Certification Programme Updates.** In accordance with DASR 21.A.15(c), the certification programme is to be updated when there are changes to any of the content required under DASR 21.A.15(b). Key aspects that require the certification programme to be re-accepted by DASA are:

1. any changes that may impact on DASA LoI, such as:

   i. change to the design or intended use

   ii. change to compliance demonstration approach (including the means of compliance)

   iii. change to the CRE Assessment (CREA) or its outcomes for a program that is leveraging prior certification

   iv. change to design organisation resources or approvals

Superseded

2. any changes to the proposed TCB (except those achieving separate agreement via an MCRI)

3. significant changes to schedule that may impact on DASA LoI activities

7.2.2.27 Changes to the certification programme can be presented as an update to the original CPP, or via a supplement, depending on the scope of the changes.

7.2.2.28 Applicants should engage early with DASA (nominally DIA) staff and remain closely engaged with CPP development and subsequent amendment, heeding advice to prevent nugatory drafting and rewriting. The DASR Form 31 can be used to notify DASA of an upcoming certification project, to initiate discussions. A face-to-face session, before any CPP drafting occurs, is strongly recommended for for complex programs.

Type Certification Basis

7.2.2.29 **Contents of a TCB.** The TCB is an agreed set of airworthiness requirements that a product must be compliant with in order to obtain an MTC. The following DASR and concepts apply to the contents of a TCB:

1. DASR 21.A.16A (Airworthiness Codes). This regulation requires that DASA shall approve the use of Airworthiness Codes[8] and other detailed specifications that may be used to demonstrate compliance of products, parts and appliances. As noted in GM 21.A.16A, rather than define a Defence-unique Airworthiness Code, DASA has elected to recognise the Airworthiness Codes prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The Defence Aviation Safety Design Requirements Manual (DASDRM) identifies the Airworthiness Codes recognised by DASA.

2. DASR 21.A.16B (Special Conditions). This regulation requires that DASA shall approve any special detailed technical specification ('special conditions') if the related Airworthiness Code or specifications do not contain adequate or appropriate safety standards. As per 21.A.16B, the need for special conditions may arise due to:

   i. novel or unusual design features (relative to the design practices on which the applicable Airworthiness Code is based)

   ii. intended use of the product is unconventional

   iii. experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop

   iv. applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.

   In the Defence context, special conditions are required when the primary Airworthiness Code selected may contain deficiencies against contemporary airworthiness requirements and / or may not account for Defence's unique CRE. DASA uses the Defence Aviation Safety Design Requirements Manual (DASDRM) to define those 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE. The DASDRM also defines a number of 'recommended'

Superseded

design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

3. DASR 21.A.17A (Type Certification Basis). This regulation defines the scope of the Defence TCB. The airworthiness requirements specified in the TCB include:

   i. the applicable requirements from the DASA recognised Airworthiness Code selected as a basis for the Defence aircraft certification (the Primary Certification Code (PCC))

   ii. the applicable 'essential' requirements prescribed in the Defence Aviation Safety Design Requirements Manual (DASDRM)

   iii. any supplementation or tailoring agreed to by DASA.

7.2.2.30 **Development of a Defence TCB.** Development of a Defence TCB is a joint activity between the applicant and DASA and is guided by the DASR listed above and the Defence Aviation Safety Design Requirements Manual (DASDRM). TCB agreement is obtained through acceptance of the certification programme in accordance with DASR 21.A.15(b).

7.2.2.31 The TCB for a new Defence aircraft type should be developed and agreed as early as practicable in the aircraft acquisition life-cycle. While a DASA-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the acquisition project office may elect to present a draft TCB for DASA assessment as a cost and schedule risk reduction measure.

7.2.2.32 In most cases, DASR and the DASDRM allow the Defence TCB to be based on the recognised design standards used by the parent CAA/MAA under which the aircraft was initially designed and certified.

7.2.2.33 The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. In the aircraft Type Certification domain, CRE is a pivotal concept. Where an ab-initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

7.2.2.34 Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE Assessment (CREA) is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB. Further guidance on leveraging prior certification is contained in Annex B to Section 7.2, and further guidance on the conduct of a CREA is contained in Annex C to Section 7.2.

7.2.2.35 **Tailoring the PCC.** During a certification program, there may be a need to tailor the PCC when seeking an MTC. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

7.2.2.36 Tailoring of the PCC may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.2.37 Tailoring of the PCC can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a Military Certification Review Item (MCRI).

Superseded

7.2.2.38 Annex A to Section 7.2 provides further guidance on tailoring the PCC, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support PCC tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Compliance Demonstration

7.2.2.39 **Overview.** Compliance demonstration evidence comprises of reports, engineering tool outputs, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable TCB is demonstrated. The applicant shall demonstrate compliance with the type-certification basis either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.2.40 The agreed certification programme will include details of how compliance demonstration is being achieved for each project. Where difficulty arises in meeting the agreed certification programme activities or outcomes, engagement with DASA as early as practicable is recommended. This phase may identify issues in compliance demonstration evidence against the agreed Defence TCB that require equivalent safety finding arguments, processing of exceptions underpinned by an Airworthiness Issue Paper (AwIP) or equivalent, or introducing new interpretations or means of compliance. In these cases an MCRI, and an AwIP as required, should be raised and submitted by the applicant for DASA consideration.

7.2.2.41 **Leveraging Prior Certification.** Defence is rarely the prime customer for new aircraft, so most acquisitions will be based on an aircraft design that has or will be certified by another CAA/ MAA. DASR 21.A.20 enables an applicant for an MTC to leverage prior certification from a recognised CAA/MAA[9] to gain relief from developing compliance demonstration evidence.

7.2.2.42 The fundamental principle of leveraging prior certification is that any requisite Authority review of evidence; testing, or witnessing of testing; or inspections (refer DASR 21.A.33(b)) have already been performed by a competent Authority (ie a CAA/MAA recognised by DASA). Therefore, duplicate effort in terms of DASA also conducting inspections / analyses / tests is unnecessary. However, as per DASR AMC 21.A.20, in order to leverage the prior certification, the applicant for the MTC must ensure:

1. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA/MAA
2. the CAA/MAA is sufficiently experienced in certification of the particular design activity
3. the certification requirements employed by the CAA/MAA are understood and any deltas from the Defence TCB have been addressed
4. the CRE applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed
5. any safety risks associated with the CAA / MAA certification have been identified, and have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

Superseded

7.2.2.43 Annex B to Section 7.2 provides additional guidance on the AMC 21.A.20 requirements for leveraging prior certification, and discusses common issues encountered with leveraging prior certification. Annex C to Section 7.2 provides further guidance on the conduct of a CREA to support relief from presenting CDE when leveraging prior recognition.

7.2.2.44 **Structures and Propulsion System Specific Guidance.** Guidance on the conduct of structures and propulsion system CREAs when leveraging prior certification can be found in GM1 21.A.20 and Chapter 6.6.2. Guidance to support AMC 21.A.41 (Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)) can be found in Chapter 6.6.2.

MTC Application, Issuance and Type Certificate Data Sheet (TCDS)

7.2.2.45 **Application.** Upon completion of all activities identified within the CPP, including development of compliance demonstration evidence and completion of DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for issuance of an MTC. The exact format of the application for an MTC will differ depending upon each project, and should be agreed within the CPP.

7.2.2.46 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will issue the MTC.

7.2.2.47 For acquisitions of new aircraft types, the Defence Aviation Authority (Defence AA) will generally elect to convene an Airworthiness Board (AwB). Aircraft acquisition AwBs, including applicant and DASA submission of documents to support the AwB, are separate to the DASR type certification process outlined within this section. AwBs are discussed further in Section 6.1.2 and Section 13.

7.2.2.48 **Type Certificate Data Sheet (TCDS).** A TCDS will accompany each MTC. The TCDS contains all information (or reference thereto) about the type certification of the product including the TCB, the type design, operating limitations, the Aircraft Flight Manual (AFM), Instructions for Continuing Airworthiness (ICA), Airworthiness Limitations (AwLs), Certification Maintenance Requirements (CMRs), critical parts list (if applicable) and any other data necessary for the continued safe operation of the product.

7.2.2.49 DASA will develop and issue the TCDS concurrently with the MTC.

DASA Assurance

7.2.2.50 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining an MTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).
2. DASA agreement of the TCB, including tailoring (refer 'Type Certification Basis' section above).
3. DASA LoI in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme'

Superseded

section above). In all cases, DASA LoI activities should be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer below for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, and issue of the MTC and TCDS.

7.2.2.51 **DASA Assurance when Leveraging Prior Certification.** Where the certification programme indicates that an applicant is proposing to leverage prior certification from a recognised CAA/MAA, then DASA assurance activities will focus on the criteria outlined in AMC 21.A.20. The guidance outlined in Annex B to Section 7.2 provides an indication of the considerations that DASA will examine as part its assurance activities.

7.2.2.52 For certain aspects, the CPP will only be providing a proposal for how the applicant intends to address the criteria for leveraging prior certification outlined in AMC 21.A.20. For example, the applicant may need to conduct further activities to confirm that the CAA/MAA is sufficiently experienced in certification of the particular design activity, conduct further analysis to show that the design is compliant for the Defence CRE, and conduct sovereign assessments for safety risk decisions or risk retention made by an MAA. Therefore, DASA will typically request the applicant provide relevant documentation prior to, or as part of, the final application.

7.2.2.53 Note that while leveraging prior certification may provide relief from the need to develop new compliance demonstration evidence, it does not provide relief from the need to present compliance demonstration evidence to DASA. As such, DASA may request to review evidence that supported the prior certification where it is deemed necessary. Where it is not possible for the applicant to provide this evidence to DASA, for example due to limitations on access to OEM data, this will be negotiated between the applicant and DASA on a case-by-case basis.

MTC Holder Obligations

7.2.2.54 MTC holder obligations are outlined in DASR 21.A.44. Refer to Section 7.4.1 for detailed guidance on MTC holder obligations.

7.2.3 – Changes to Type Certificates and Military Supplemental Type Certificates (DASR 21 Subpart D and E)

Overview

7.2.3.1 **Scope of Section.** Section 7.2.3 primarily describes the DASR type certification process for major changes to the type certificate and obtaining a Military Supplemental Type Certificates (MSTC). Minor changes to the type certificate are only briefly addressed herein.

7.2.3.2 **Change to a Type Certificate.** As defined by DASR 21.A.41, the type certificate includes:

1. The Type Design, which includes[10]:

Superseded

i. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the applicable TCB;

ii. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;

iii. An approved Airworthiness Limitations Section (ALS) of the ICA as defined by the applicable airworthiness codes; and

iv. Any other data allowing by comparison the determination of the airworthiness of later products of the same type.

2. Operating Limitations

3. The TCDS

4. The applicable TCB

5. Any other conditions or limitations prescribed for the product in the applicable airworthiness requirements.

7.2.3.3 A change to any aspect of the items listed above is considered a change to the type certificate, and must be undertaken in accordance with DASR 21 Subpart D or E.

7.2.3.4 Note that DASR M.A.304(d) allows for the Operator to directly consume data for minor changes that has been approved within the framework of Authorities recognised by DASA. Under this pathway, the requirements of DASR 21 are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. Data for major changes cannot be directly consumed via recognition, and must be processed in accordance with DASR 21 Subpart D or E. Refer to Section 8.2 for further information on the direct consumption of data via recognition. Consumption of data for minor changes via recognition is not discussed any further within this section.

Classification

7.2.3.5 In accordance with DASR 21.A.91, all changes to the type certificate must be classified as minor or major.

7.2.3.6 A minor change is defined as a change that has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. All other changes are defined as major. Guidance on classification of changes to type certificates, including examples of changes that should be classified as major, can be found in DASR GM 21.A.91.

7.2.3.7 DASR 21J MDO approval holders will typically have the privilege to classify changes that are within the scope (e.g. technology or platform types) of their terms of approval. As noted in DASR GM 21.A.91, DASA should be consulted for clarification wherever there is doubt as to the classification of a change. Furthermore, when the strict application of the DASR GM 21.A.91 paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and DASA can take the responsibility in reclassifying the change.

Processing of Minor Changes

Superseded

7.2.3.8 Minor changes to the type certificate must be undertaken in accordance with DASR 21 Subpart D, and can be approved by DASA or a DASR 21J MDO approval holder with the necessary privilege and scope. DASA expects that in the Defence context, minor changes to type certificates undertaken in accordance with DASR 21 Subpart D will be developed and approved by a DASR 21J MDO[11].

Processing of Major Changes

7.2.3.9 Changes that are classified as major can be processed and approved as a:

1. major change to the existing MTC under DASR 21 Subpart D, or
2. a MSTC under DASR 21 Subpart E.

7.2.3.10 The decision to apply for a major change (DASR 21 Subpart D) versus a MSTC (DASR 21 Subpart E) will depend upon the specific context. Under the DASR construct, both these authorisations will be issued to the government MTC holder. The default approach is usually issue a major change to the existing MTC, however, as discussed in the following sub-section, there may be cases where an MSTC is more appropriate.

Use of Military Supplemental Type Certificates (MSTCs)

7.2.3.11 The reasons for using an MSTC are different in the Defence context from in the civilian context. This sub-section provides guidance on when an MSTC should be used under the DASR.

7.2.3.12 **Civil use of Supplemental Type Certificates (STCs).** In the civil context, STCs are generally used for commercial purposes. They are used where a designer (either the OEM or another designer) alters the aircraft to provide a new capability that they can sell separately to the original Type Certificate. Of note, designers who are not the holder of the original Type Certificate can only ever apply for STCs for design changes that are classified as major, as it is not possible to apply for a major change to a certificate you do not hold.

7.2.3.13 Major changes to the Type Certificate are limited to changes done by the Type Certificate Holder, and are mostly (though not always) mandatory Service Bulletins and Airworthiness Directives to address safety issues identified in service as part of the holder obligations (eg DASR 21.A.3A).

7.2.3.14 **Use of MSTCs Under DASR.** Under the DASR the reasons for using an MSTC are different to the civil context. The following are the reasons that an MSTC (as opposed to a major change to the MTC) would be used under the DASR:

1. Sub-fleet: An MSTC may be used to manage a sub-fleet. This would be where there is one or more aircraft in the fleet that are intended to be configured or operated in a significantly different manner to the remainder of the fleet. Note, sub-fleets can also be managed via major changes to the MTC, so an MSTC may be used but is not the only option for management of sub-fleets.
2. Significant Change to the TCB: An MSTC may be used to manage a change that involves a distinct change to the TCB. Generally this will be the result of reliance on prior certification which has adopted a different PCC than that used for the original MTC. While the change to the PCC may be able to be managed via MCRI(s), it may reduce the complexity of ongoing management of the authorisations by covering the change under an MSTC.

Superseded

3. Large and Complex Changes: An MSTC may be used for large and complex changes. While the process for review and approval of a major change or an MSTC is the same, use of an MSTC provides greater visibility, and as a result greater clarity, of the precise nature and scope of the change. MSTCs are often understood by Defence Operators as being a change of more significance, which warrants greater operational consideration.

4. Management Reasons: An MSTC may be used for ease of management from the perspective of the MTC holder. This may be required to provide alignment between the DASR authorisations and authorisations being leveraged via recognition. It may be simpler for an MTC holder to manage their obligations if the Defence authorisations are aligned with the OEM authorisations.

7.2.3.15 Note that when changes are applied to the MTC for a platform that also has MSTC(s), the compatibility of the change with the existing MSTC(s) must be explicitly addressed. Under the civil system, a change to the Type Certificate does not need to explicitly consider compatibility with potential STCs. It is the Operator's responsibility to consider the impact of change to the Type Certificate against any STCs applied to their aircraft, and to engage the STC holder as required. However, in the DASR context, the MTC and MSTCs are frequently more integrated and less able to be clearly separated from each other. In addition, the MTC and MSTCs are all held by the same organisation so separating consideration of the MTC and MSTCs is unnecessary and adds confusion for no benefit. As such, it is not appropriate to progress a major change to the MTC without considering the impact on existing MSTCs.

Eligibility

7.2.3.16 Applicant eligibility requirements exist to control how designs and applications are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance evidence and how the declaration of compliance is made, and has confidence in the applicant's ability to fulfil the obligations associated with holding the relevant authorisation.

7.2.3.17 **Major Change to the MTC.** In accordance with DASR 21.A.92, only the MTC holder can apply for a major change to the MTC. However, as noted by DASR GM 21.A.92(a), this includes any organisation acting on behalf of the MTC holder. DASA considers it appropriate for a design organisation to act as the applicant for a major change (on behalf of the MTC holder) where:

1. the agreement between the MTC holder and design organisation required by DASR 21.A.14(c) permits,

2. the TCAE reflects the agreement and arrangements under which such applications may occur, and

3. the proposed design change is within the scope of the design organisation's approval.

7.2.3.18 In all cases, the MTC holder must sign the final application for the major change (ie Form 31A) to confirm that they have been consulted on, and have no objection to, the major change, and will carry out holder responsibilities.

7.2.3.19 During sustainment, additional design organisations may be engaged by the MTC holder to support new modifications or reflect expanding design support agreements. In these cases, the MTC holder should inform DASA of the proposed support arrangements and define additional oversight requirements to support specific applications.

Superseded

7.2.3.20 **MSTC.** In accordance with DASR 21.A.112A, any organisation that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.112B shall be eligible as an applicant for an MSTC. The DASR 21.A.112B demonstration of capability requirements are essentially the same as those of DASR 21.A.14 (refer to the 'Eligibility' guidance in Section 7.2.2, and relevant AMC and GM for further information).

7.2.3.21 However, as noted by DASR GM 21.A.115, DASA will issue all MSTCs to the relevant government MTC holder organisation. This means that, in effect, all applications for MSTC are being made on behalf of the MTC holder who will be the eventual holder of the MSTC. Applicants for MSTCs must be able to demonstrate that they are acting on behalf of the MTC holder.

7.2.3.22 **Major Change or MSTC Applications by CASG Project Offices.** In some cases, the CASG project office may act as the applicant for a major change or MSTC for larger or more complex modifications to an existing aircraft, such as for a mid-life upgrade program or significant capability upgrades.

7.2.3.23 Since only the MTC holder can apply for major changes to the existing MTC, the CASG project office would be considered to be applying for the approval on behalf of the MTC holder. For MSTC applications, the CASG project office could be considered the applicant under the DASR 21.A.112B(c) exception clause. In either case, the eligibility assessment will focus on the arrangement between CASG and supporting design organisation(s), and address how the arrangements comply with the requirements of DASR 21 Subpart J.

7.2.3.24 Also refer to the 'MTC Applications by CASG SPOs (Project Offices)' guidance in Section 7.2.2 for further information, including guidance on applicant eligibility when CASG project offices wish to leverage recognition provisions.

7.2.3.25 CASG project offices seeking to apply for a major change or MSTC are strongly encouraged to initiate early contact with DASA during the appropriate stage of the Capability Life Cycle (such as preceding, or early in, the Acquisition phase) to discuss how the DASR eligibility provisions will be met for the intended program.

Certification Programme

7.2.3.26 **Overview.** Under DASR 21, a certification programme is required for all changes to type certificates and MSTCs. The certification programme provides the details necessary to understand the design activity and how certification will be achieved for that activity. A stand-alone document that presents the certification programme for formal DASA acceptance is termed a CPP.

7.2.3.27 For MSTC and 'complex'[12] major change programs, the certification programme must be presented to DASA for formal acceptance prior to the final application and declaration of compliance, and it is recommended that it be presented as a CPP. For other certification activities, the certification programme may be documented through the design pack or final application, and does not require formal DASA acceptance. Table 7.1 summarises the certification programme requirements for different design activities.

Certification Activity	DASR Reference	Formal DASA Acceptance Required?	Comments
Application for an MSTC	21.A.113(b)	Yes	Certification programme should be presented as a

Superseded

	21.A.93(b)		CPP containing the information required by 21.A.93(b) and the supporting AMC. The DASA major change/MSTC CPP template will assist in meeting the required outcomes.
Application for a 'complex' major change	21.A.93(b)	Yes	
Application for a 'simple' major change	21.A.93(b)	Yes	Certification programme can be provided with the final application for approval of the change.
Minor change to type-certificate	21.A.93(b)[13]	No	

Table 1: Certification Programme Requirements for Design Change Activities

7.2.3.28 Two CPP templates are published on the DASA website (one for MTCs and one for major changes/MSTCs), which provide detailed guidance on the structure and content of a certification programme. This section should be read in conjunction with the major change/MSTC CPP template.

7.2.3.29 The organisation(s) involved in the development and submission of a certification program for a major change or an MSTC application will vary depending upon the platform support arrangements. As noted above, the design organisation that supports the MTC holder functions may act as the applicant on behalf of the MTC holder in certain circumstances. In these cases, the design organisation will usually develop the CPP and engage with DASA for formal acceptance when required.

7.2.3.30 **Simple Major Changes.** For 'simple'[14] major changes, the certification programme may be presented with the final application (ie with the Form 31a pack). This approach introduces a risk that if DASA identifies issues with the certification programme, or with the decision to treat the change as simple, there may be a requirement for rework of compliance demonstration activities, resulting in a delay to the program. As such, this approach should only be followed where the change is straightforward; for example, OEM Service Bulletins that have received CAA/MAA certification. If there is doubt as to whether a change would meet the definition of 'simple', DASA Type Certification section should be contacted for advice.

7.2.3.31 **Contents of a Certification Programme.** DASR 21.A.93(b) outlines the requirements for content of a certification programme for a major change or an MSTC.

7.2.3.32 Certification programmes must be tailored to meet the requirements of the certification activity. If a change has been assessed as 'simple', then there is no need to do a full breakdown of the programme into CDIs or to provide a detailed LoI proposal, as the LoI must be assessed as nil to meet the definition of a simple change. For changes that rely on prior certification, the breakdown of the programme into CDIs is only required for areas that are not able to fully leverage prior certification (ie where additional compliance demonstration evidence is being developed).

7.2.3.33 For 'complex' major changes and MSTC, the certification programme should be presented as a CPP containing the information required by DASR 21.A.93(b) and the supporting AMC and GM. The major change/MSTC CPP template published by DASA will assist in meeting the required outcomes.

Superseded

7.2.3.34 **Further Guidance.** Refer to the certification programme information in Section 7.2.2 for further guidance on proposal of CDIs and DASA LoI, as well as certification programme acceptance and updates.

Certification Basis

7.2.3.35 For all changes to a product, the design organisation must identify the areas affected by the change and the corresponding certification basis (airworthiness requirements) for those areas. The applicable airworthiness requirements will depend upon the nature of the change, and can be generalised as follows:

1. **Substantial changes.** Some changes are so extensive that a new type certificate is required (refer DASR 21.A.19), and therefore would require an entirely new TCB to be established. Substantial changes for an existing aircraft type are unlikely within the Defence context.

2. **Significant (major) changes.** For major changes that are categorised as significant[15] under DASR 21.A.101, then the latest amendment level of the airworthiness requirements referenced in the TCB should be used for the change.

3. **Non-significant (major) changes.** For major changes that are not categorised as significant, then the DASR 21.A.101(b) exception clause allows the existing airworthiness requirements in the TCB to be used for the change. DASR 21.A.101(b) also allows the existing airworthiness requirements to be used for a significant change in cases where use of the latest amendment of the airworthiness requirements referenced in the TCB would not contribute materially to the level of safety, or is impractical.

4. **Minor changes.** Minor changes, by definition, do not affect the airworthiness of the product. This means that it is appropriate to use the existing airworthiness requirements in the TCB for the change (refer DASR 21.A.95(b)(1) and DASR AMC 21.A.95).

7.2.3.36 As stated above, using the existing airworthiness requirements in the TCB is usually considered adequate for minor changes and non-significant major changes. However, as noted in DASR GM 21.A.93(b)(2), Australia's WHS Act levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised SFARP. Updates (later amendments) to applicable standards may provide insight into hazards and potential controls that are not identified in the existing TCB. The requirements prescribed in the DASDRM also provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

7.2.3.37 The certification programme for the change should identify the proposed certification basis (ie existing or latest amendment level, with justification as required) and any 'reinvestigations' required[16].

7.2.3.38 **Changed Product Rule.** DASR 21.A.101 is commonly referred to as the 'changed product rule' and is used by applicants and DASA to establish the certification basis for major changes and MSTCs. The primary decision under the changed product rule is whether the latest amendment of the airworthiness requirements referenced in the TCB must be used (ie significant major change), or whether the nature of the major change allows the existing airworthiness requirements to be used (ie non-significant major change). If an applicant elects to comply with the latest amendment for a major

Superseded

change that could otherwise be categorised as non-significant, then the change will be compliant with DASR 21.A.101(a) and no further justification would be required.

7.2.3.39 DASR GM 21.A.101 contains extensive guidance and a step-by-step process for applicants to follow in order to establish the proposed certification basis for the major change. A summary of the changed product rule criteria and outcomes is shown below in Table 7.2. Table 7.2 is taken from Appendix B to GM 21.A.101, and only provides a brief summary of the extensive guidance and step-by-step process contained in DASR GM 21.A.101. A number of the Appendices to GM 21.A.101 refer to the EASA GM 21.A.101, including Appendix A of EASA GM 21.A.101 which provides examples of changes that EASA, the FAA and other Authorities considered to be 'substantial', 'significant' and 'non-significant'.

<table>
<tr><th>Substantial
(21.A.19)</th><th colspan="3">Significant
(21.A.101(a) and (b))</th><th>Not Significant
(21.A.101)(b)(1))</th><th></th></tr>
<tr><td rowspan="3">Substantially changed product
Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td colspan="3">Affected area
(Changed and/or affected areas)
New demonstration of compliance is required
Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td><td rowspan="3">Affected area
(Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.</td><td rowspan="3">Unaffected area
No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.</td></tr>
<tr><td colspan="2">Compliance with the latest amendment materially contributes to safety</td><td>No material contribution to safety</td></tr>
<tr><td>Practical
—</td><td>Impractical
The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td><td>The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.</td></tr>
<tr><td colspan="6">Certification Basis Proposed by the Applicant</td></tr>
<tr><td colspan="2">New certification basis using latest airworthiness codes and standards.</td><td colspan="2">Airworthiness codes and standards at earlier amendments with supporting rationale.</td><td>Existing certification basis.</td><td>Existing certification basis including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
<tr><td colspan="6">Resultant Type-Certification Basis, subject to acceptance by the Authority</td></tr>
<tr><td colspan="2">New certification basis using the latest airworthiness codes and standards, and special conditions if required.</td><td colspan="2">New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.</td><td>Existing certification basis.</td><td>Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.</td><td>Existing certification basis.</td></tr>
</table>

Table 2: Establishing Certification Basis for Changed Products

7.2.3.40 Significant major changes shall also comply with the relevant 'essential' design requirements defined in the DASDRM (refer DASR AMC 21.A.101).

7.2.3.41 Note that for major changes, DASR 21.A.101(e) is a further exception clause that allows applicants to propose an alternative to the airworthiness requirements in the TCB. DASA may agree to the use of an alternative set of airworthiness requirements provided the alternative provides at least an equivalent level of safety to the existing TCB.

7.2.3.42 The process and justification used to comply with DASR 21.A.101 should be included within the certification programme, and the DASA major change/MSTC CPP template contains specific headings to include this information.

7.2.3.43 When applicants believe that the major change under consideration may be significant, or have questions about application of DASR 21.A.101, then engagement with DASA as early as practicable is recommended.

7.2.3.44 **Tailoring the TCB.** During a certification program, there may be a need to tailor the TCB when seeking a major change approval. This tailoring may be required to supplement the PCC for a specific technology area, to specify later amendments of requirements or to otherwise account for the Defence CRE.

Superseded

7.2.3.45 Tailoring of the TCB may be required to address a range of situations, such as CRE differences, special conditions, new means of compliance or any other certification issues that require clarification or interpretation.

7.2.3.46 Tailoring of the TCB can be achieved by directly including additional requirements or standards in the Defence TCB, or through use of a MCRI.

7.2.3.47 Annex A to Section 7.2 provides further guidance on tailoring the TCB, including when an MCRI is required and the MCRI categories adopted and employed by DASA, when Operator agreement is required to support TCB tailoring and how that agreement should be achieved, and illustration of the process involved in obtaining DASA agreement for tailoring.

Reclassification of Changes Requiring TCB Tailoring

7.2.3.48 Occasionally, changes to type certificates that would otherwise be classified as minor, are required to be classified as major only because of the need to tailor the TCB. This section outlines an approach to enable these changes to be reclassified to minor, once the TCB tailoring has been agreed. This approach will allow greater use of DASR 21J MDO privileges, and reduce DASA assurance in areas where there is not a clear safety benefit.

7.2.3.49 **Reclassification Justification.** DASR GM 21.A.91 states that any changes that require an adjustment of the TCB, other than electing to comply with a later amendment of a requirement, must be classified as major. However, it also states that when the strict application of the classification criteria for a design change results in a major classification, the applicant may request re-classification, if justified, and DASA can take the responsibility in re-classifying the change.

7.2.3.50 DASA has identified that, for changes that are classified as major solely due to a need to tailor the TCB, continuing to process these as major changes once the tailoring of the TCB has been agreed imposes additional administrative burden without commensurate safety benefit, and can result in a delay to the introduction of safety improvements or capability upgrades. As such, DASA considers it appropriate for these changes to be re-classified to minor, as allowed by DASR GM 21.A.91, and either directly consumed (if subject to prior certification) or approved by a DASR 21J approved organisation holding appropriate privileges.

7.2.3.51 **Reclassification Process** (Figure1). Reclassification is only possible once the tailoring of the TCB has been agreed. An applicant may submit the requests for TCB tailoring and reclassification concurrently, allowing a single DASA response, or the reclassification request may be submitted after the tailoring has been agreed. Requests for reclassification are to be submitted via Letter or Minute to DASA via the DIA Type Certification mailbox (dasa.typecert@defence.gov.au). Requests must be submitted by an organisation that meets the eligibility requirements to apply for a major change under DASR 21 Subpart D (ie the MTC holder or a design organisation that provides MTC holder functions as part of establishing holder capability).[17]

7.2.3.52 The applicant must provide confirmation that the design would meet the requirements to be classified as minor if not for the tailoring of the TCB. This may be provided as an assessment from a DASR 21J approved organisation that has privileges to classify changes, or by providing evidence of approval as a minor change under the system of a recognised CAA/MAA with an equivalent classification system.

Superseded

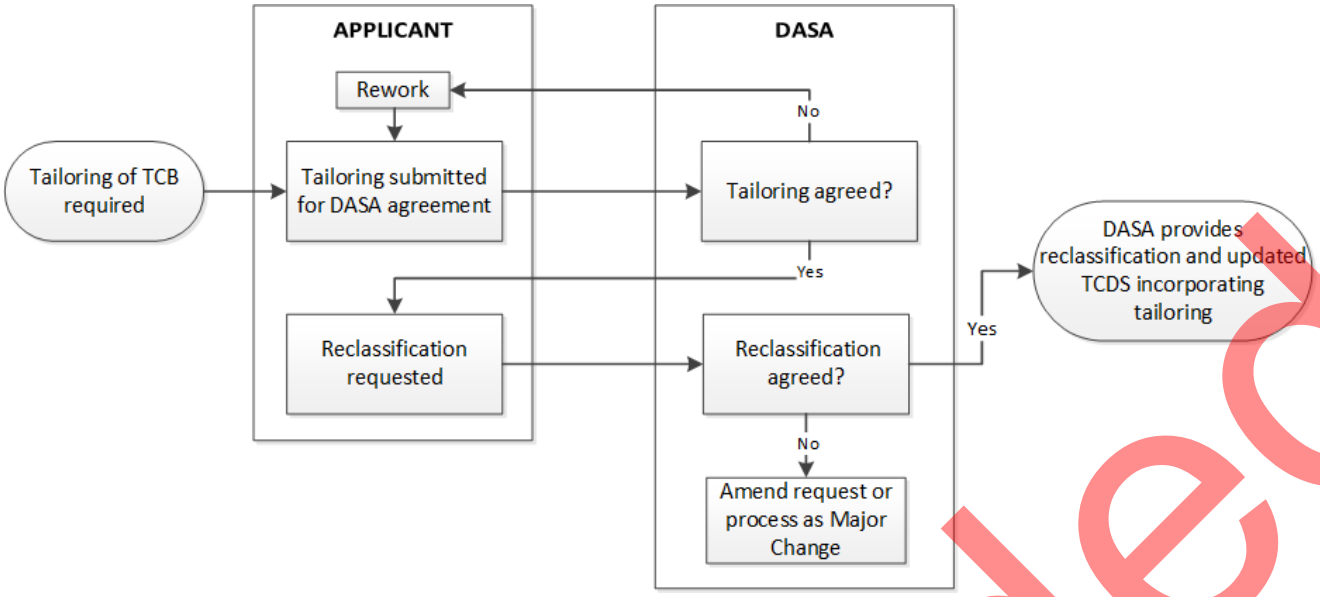


Figure 1: Process for reclassification when TCB tailoring is required

Compliance Demonstration

7.2.3.53 Compliance demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the TCB requirements applicable to the change / MSTC is demonstrated. The applicant shall demonstrate compliance with the applicable TCB requirements either:

1. through compliance demonstration evidence developed by a MDOA holder (or alternative as agreed by DASA); or
2. through appropriate evidence of prior certification provided by another CAA / MAA.

7.2.3.54 Refer to the 'Compliance Demonstration' evidence guidance in Section 7.2.2 for further information.

Application, Approval / Issue and TCDS Update

7.2.3.55 **Application.** Upon completion of all activities identified within the certification programme, including development of compliance demonstration evidence and DASA LoI, the applicant provides the required declaration of compliance (refer DASR 21.A.20(d)) and formally applies to DASA for approval of a major change, or issuance of an MSTC, using the DASR Form 31A.

7.2.3.56 **Issuance.** Upon receipt of the application, DASA assures itself that agreed certification programme activities have been completed, and will approve the major change or issue the MSTC.

7.2.3.57 **TCDS.** As required, DASA will develop and issue the TCDS update concurrently with the major change approval or MSTC issuance.

DASA Assurance

7.2.3.58 DASA independent safety assurance activities occur throughout the type certification process, and will vary in nature, scope and depth based on each individual project. Key DASA assurance activities for obtaining a major change or MSTC include:

1. DASA acceptance of the certification programme (refer 'Certification Programme' section above).

Superseded

2. DASA agreement of the TCB, including tailoring (refer 'Certification Basis' section above).

3. DASA Level of Involvement (LoI) in compliance demonstration activities. The term LoI describes DASA's involvement in the verification of compliance demonstration. DASA LoI can include review of compliance data and information; testing, or witnessing of compliance testing; or inspections (refer DASR 21.A.33(b)). Depending upon the design, DASA LoI may occur over an extended duration and include on-site witness activities. DASA LoI will have been defined in the certification program (refer 'Certification Programme' section above). In all cases, DASA LoI activities must be successfully completed prior to the applicant's declaration of compliance.

4. DASA assurance activities related to leveraging prior certification. These activities can be broadly described as DASA review of the evidence and artefacts that support the applicant's claims that prior CAA/MAA certification can be leveraged (refer to the 'DASA Assurance' guidance in Section 7.2.2 for more detailed information).

5. DASA assurance activities related to the final application. These activities typically include review / evaluation of compliance artefacts submitted as part of the final application, approval of the major change or issue of the MTC, and update of the TCDS as required.

Holder Obligations

7.2.3.59 Given the DASR only allows the MTC holder to be the applicant for a major change to an existing MTC, there are no separate DASR holder obligations for major changes, and the MTC holder must undertake the obligations laid out in DASR 21.A.44 for the MTC, including and all major changes thereto.

7.2.3.60 Obligations for holders of an MSTC are laid out in DASR 21.A.118A . However, given DASA's policy of issuing all MSTCs to the government MTC holder organisation, and the fact that the DASR 21.A.118A obligations are essentially the same as those ofDASR 21.A.44, the MTC holder simply needs to continue to undertake all obligation laid out in DASR 21.A.44 for the MTC and all MSTCs they hold.

7.2.3.61 Refer to Section 7.4.1 for detailed guidance on the DASR 21.A.44 MTC holder obligations.

7.2.4 – Repair Designs (DASR 21 Subpart M)

Overview

7.2.4.1 Data that is used to accomplish repairs needs to be approved by a suitable and competent organisation. Data may be approved through a repair design approval process where DASA is the certifying authority, or through a process where recognition is used. These two broad pathways are covered by DASR M.A.304, which provides the requirements for data that is used to carry out repairs and modifications:

1. DASR M.A.304(a) and (b) allow data to be used that has been approved by DASA, and by a Design Organisation approved under DASR 21, respectively. In both cases DASA is the certifying authority and the requirements of DASR 21 Subpart M (Repairs) are applicable.

Superseded

2. DASR M.A.304(d) allows for the consumption of data that has been approved within the framework of Authorities recognised by DASA. In this instance the repair approval requirements of DASR 21 Subpart M (Repairs) are not applicable. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate.

7.2.4.2 This section is relevant to data for repairs conforming to DASR M.A.304(a) and (b) and provides:

1. an overview of the repair approval process in accordance with DASR 21 Subpart M (Repairs)
2. guidance for design organisations and MTC holders regarding DASA's expectations for repair design development and approval
3. more detailed guidance in the form of a number of common repair scenarios.

7.2.4.3 Guidance regarding use of repair data in accordance with DASR M.A.304, including consumption of data using recognition provisions, is provided in the Section 8.2.

7.2.4.4 Note that additional general information about Repair Design authorisations is contained in Section 5.3 Annex R.

DASR 21 Repair Design Privileges

7.2.4.5 DASR 21 Subpart J privileges related to repair designs include the privilege to:

1. classify repairs (DASR 21.A.263(c)(1)),
2. approve minor repairs (DASR 21.A.263(c)(2)), and
3. approve certain[18] major repairs (DASR 21.A.263(c)(5)).

7.2.4.6 These privileges require the design organisation to have procedures agreed to by DASA, usually by issue of a Military Design Organisation Approval (MDOA). These procedures would normally be documented in a Design Organisation Handbook[19].

Repair Process

7.2.4.7 The overall process for development, approval and embodiment of repairs where DASA is the certifying authority is outlined in Table 7.3. Further guidance, in the form of specific scenarios are outlined in Annex D to Section 7.2 Repair Design Approval Scenarios. Note that the scenarios in Annex D are defined as an aid for explanation, rather than as a series of strict processes.

Stage	Description	Responsibility
Identify and Assess Damage	Damage identified for which there is no existing pre-approved solution.	CAMO
Develop Repair Design	Repair design data is developed.	Design organisation

Superseded

Repair Classification	Repair classified in accordance with the requirements of DASR 21.A.435a.	DASA or an appropriately approved design organisation under a procedure agreed with DASA
Repair Certification	Establish Certification Basis (CB). Demonstrate compliance with required CB elements, Compliance Verification, Declare Compliance. Submit application for approval if required.	Applicant that meets the eligibility criteria[20]
Repair Approval	Approval of Repair. The assignment of obligations to the repair approval holder (dependent on classification).	DASA or an appropriately approved design organisation under a procedure agreed with DASA.
Repair Configuration Management	Manage the accomplishment of repairs and maintain a record of aircraft configuration, which includes repairs.	CAMO
Production of Repair Parts	Produce repair parts.	Appropriately approved production organisation, under DASR 21 Subpart G or Subpart F, or an appropriately approved maintenance organisation under DASR 145
Repair Embodiment	Embody repair.	Appropriately approved maintenance organisation under DASR 145 or appropriately approved production organisation under DASR 21 Subpart G
Ongoing Holder Obligations		Repair design approval holder

Table 3: Repair Process where DASA is the Certifying Authority

Repair Design Classification

7.2.4.8 As per DASR 21.A.435a – Classification and approval of Repairs – a repair must be classified as either minor or major in accordance with the criteria laid out in DASR 21.A.435a. Classification of repairs guides DASA to apply appropriate assurance oversight and allows for the obligations of the holder of a repair design approval to be identified. Classification does not affect the certification basis, demonstration of compliance, independent checking or declaration of compliance and, as such, whether a repair is classified as major or minor does not affect the engineering rigour applied to the repair. Repair classification may be made by either DASA or by an appropriately privileged design organisation under a procedure agreed to with DASA[21].

7.2.4.9 DASR GM 21.A.435a states that a new repair – a repair that has not previously been approved for the application being considered on the individual aircraft in question – is classified as major if it has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting airworthiness. This is elaborated on to highlight that repairs needing extensive static, fatigue or damage tolerance justification or testing, or requiring

Superseded

methods, techniques or practices that are unusual, are to be classified as major. This GM identifies repairs that require permanent changes to Airworthiness Limitations (AwLs) to be classified as major.

7.2.4.10 The paragraphs below give examples of what may need to be considered in developing a repair classification procedure. Each organisation must develop its own procedure which meets the requirements of DASR 21.A.435a, 21.A.239, 21.A.263 and 21.A.243 and is tailored to the organisations scope of work. However, the considerations below, based on the guidance provided in the GM 21.A.435a and GM 21.A.91, are provided to further clarify DASA's expectations of such a procedure.

7.2.4.11 For clarity, classification may consider the following three characteristics of the repair design:

1. Severity – the effect of the repair on airworthiness.
2. Complexity – the complexity of the design and the certification requirements.
3. Novelty – whether the design has been developed in accordance with established methods and practices for the repair application in question.

7.2.4.12 Generally repairs may be classified as major except when all of the following criteria are met:

1. Severity is low. Examples of the types of details that would be expected from repairs of low severity include:
    i. Structural performance, in terms of static strength, fatigue performance, damage tolerance performance, flutter and stiffness characteristics, is unaffected by the repair.
    ii. Load paths and load sharing in the vicinity of the repair are unaffected by the repair.
    iii. Weight and balance change is not greater than that allowed in the weight and balance manual or Original Equipment Manufacturer (OEM) repair guidance for weight and balance. This includes changes in centre of gravity and load distribution. Weight and balance of control surfaces can be particularly affected by even small changes.
    iv. Changes do not affect the operation or redundancy of a system, or an adjacent system.
    v. Changes do not affect operational characteristics.
    vi. Other characteristics related to airworthiness, or to environmental characteristics of the platform (such as noise, fuel venting and exhaust characteristics), are not affected including, but not limited to, fire protection, propulsion systems integrity and crashworthiness.
2. The repair design and the certification requirements are not complex. Examples of the types of details that would be expected from repairs of low complexity include:
    i. Repair requires no or minimal re-assessment or re-evaluation of original certification substantiation data
    ii. Repair design elements are straightforward.

Superseded

iii. Original type certification data is available, or if not available appropriate data can be established without complex engineering, and no assumptions are required in the definition of the certification requirements.

3. There are no new or novel features to the repair. Examples of the types of details that would be expected from a repair that does not have new or novel features include:

   i. Techniques, methods and practices are those employed in the regular management of the platform and type of defect.

   ii. Techniques, methods and practices are those accounted for in the platform Type Design.

7.2.4.13 It is recognised that in some cases not all data will be available at the time of initial repair classification, and so, judgement must be exercised. In the case where later data indicates that the initial classification is no longer valid, a repair may be reclassified. In this case, consultation with DASA and, where necessary, reconsideration of the Certification Programme (CP), is expected.

7.2.4.14 These classification considerations are outlined in Figure 2.

Superseded

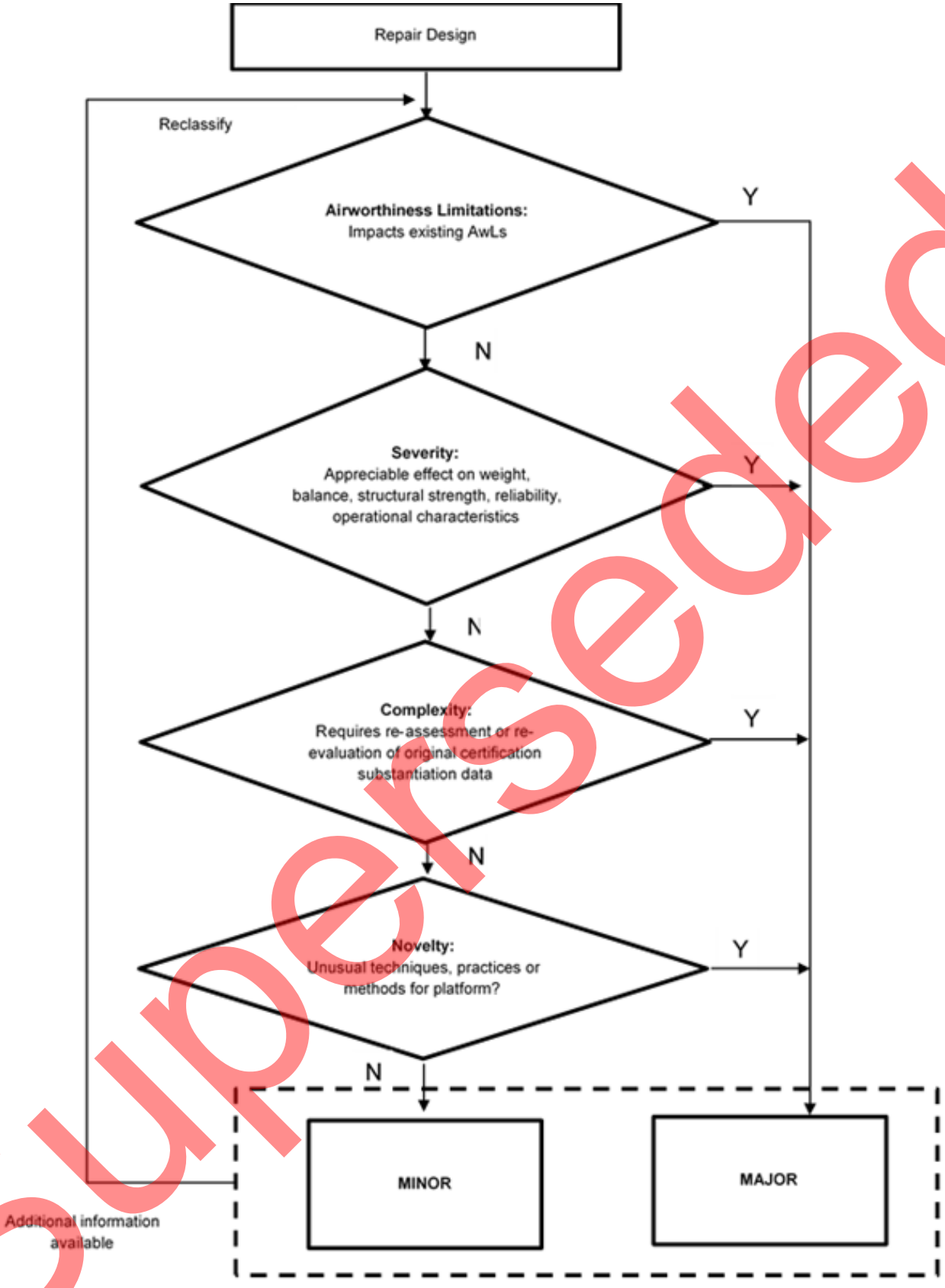


Figure 2 : Repair Classification Principles

Eligibility

7.2.4.15 Applicant eligibility requirements exist to control how designs are developed and presented to DASA for review and inspection. These ensure that DASA has visibility of the applicant's organisation, understands and has confidence in the generation of compliance documents, artefacts

Superseded

and how the declaration of compliance is made. This provides DASA with confidence in the applicant's ability to fulfil the obligations of the repair approval holder where applicable. As such applicants for repairs must meet eligibility criteria as defined in DASR 21.A.432A.

7.2.4.16 To be eligible as an applicant for a major repair design approval, the applicant is to either hold an approval under DASR 21 Subpart J, or may seek DASA agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to demonstrate capability, or may be a government organisation which has agreements in place with a design organisation with access to the type design data.

7.2.4.17 Any organisation is eligible to apply for approval of a minor repair design. It is recommended that an organisation considering applying for DASA approval of a minor repair design seeks approval through an organisation holding a minor repair approval privilege under DASR 21 Subpart J, as DASA priorities will likely lead to delays in the approval of minor repairs.

Approval

7.2.4.18 Repair design approvals may be issued by DASA or an appropriately privileged design organisation, in accordance with DASR 21.A.435b.

7.2.4.19 In the case where DASA is issuing a major repair design approval, DASA receipt of a DASR Form 31B should signify the completion of a period of engagement between the applicant and DASA during which the certification activities agreed within the CP have been undertaken[22], including satisfactory DASA inspection of compliance documents. Upon receipt of the application, DASA assures itself that agreed CP activities have been completed, and if assured, DASA issues to the designated major repair design approval holder a signed DASR Form 31B for major repairs under DASR 21 Subpart M.

7.2.4.20 Design organisations approved under DASR 21 Subpart J can approve designs for minor repairs and certain major repairs, subject to the scope and privileges recorded in their terms of approval, and subject to their internal procedures agreed to by DASA. Further guidance based on repair classification is as follows:

1. **Minor Repairs.** Most MDOA holders approved by DASA will have the privilege to approve minor repairs that are within the scope of their terms of approval (privilege DASR 21.A.263(c)(2)).

2. **Major Repairs.** Some MDOA holders approved by DASA may also have the privilege to approve certain major repair designs that are within the scope of their terms of approval (privilege DASR AMC1 21.A.263(c)(5). The definition of 'certain major repairs' is provided in DASR AMC1 21.A.263(c)(5), (8) and (9), and depends upon whether or not the MDOA holder holds the relevant MTC, MSTC or Australian Military Technical Standard Order Authorisation (AUSMTSOA). In all cases, the ability to exercise the major repair approval privilege is subject to additional criteria and limits based on the characteristics of each individual repair design. For MDOA holders who do not hold the MTC, MSTC or AUSMTSOA, each new major repair design should be assessed against the 'List associated with the privilege' and the relevant 'Justification document' to determine whether the privilege can be exercised. Refer to AMC1 and AMC2 to DASR 21.A.263(c)(5), (8) and (9) for further information on award of, and exercising, the privilege to approve certain major changes.

Holder Obligations

Superseded

7.2.4.20 Following approval of the repair design, the obligations for the repair are assigned to the holder of the repair design approval in accordance with DASR 21.A.451. For both minor and major repairs these obligations include:

1. DASR 21.A.4 – Coordination between Design and Production.
2. DASR 21.A.447 – Record Keeping.
3. DASR 21.A.449 – Instructions for Continuing Airworthiness.
4. DASR 21.A.451(a)2 – Specify the markings in accordance within accordance with DASR 21.A.804(a).

7.2.4.21 For major repairs additional obligations of the holder of the repair design approval include:

1. DASR 21.A.3A – Failures, Malfunctions and Defects.
2. DASR 21.A.3B – Airworthiness Directives.
3. DASR 21.A.439 – Production of Repair Parts.
4. DASR 21.A.441 – Repair Embodiment.
5. DASR 21.A.443 – Limitations.
6. DASR 21.A.433(b) – Substantiation Data.

Superseded

7.2.5 – Instructions for Continuing Airworthiness (ICA)

Basic Principles of ICA

7.2.5.1 **ICA and maintenance data.** ICA is only a subset of all maintenance data that must be complied with in the conduct of maintenance[23]. Other sources of maintenance data include Airworthiness Directives (or other applicable requirements or operational directives issued by DASA), modification and repair implementation instructions and applicable maintenance standard practices. ICA should not be used as a collective term for all maintenance data as other sources of maintenance data are derived from different sources and subject to different regulation. This section deals only with ICA, not all forms of maintenance data.

7.2.5.2 **Airworthiness requirement.** The applicant for an MTC must develop ICA as required by the Type Certification Basis (TCB). Civil primary certification codes used for military products contain clauses (e.g. FAR/CS 23/25/27/29.1529 (aircraft), FAR 33.4 and CS-E 25 (engines), and FAR 35.4 and CS-P 40 (propellers)) that prescribe the content and format of ICA. Products with a military-derived TCB (e.g. from MIL-HDBK-516) have equivalent requirements for the development of maintenance instructions that achieve a similar intent to the civil airworthiness requirements above.

7.2.5.3 **Content and scope of ICA.** To meet the ICA requirements of a civil airworthiness code (or equivalent requirements of a military-derived TCB), the applicant for an MTC must provide:

1. Scheduling information for all recommended maintenance tasks. This information is normally contained in a Maintenance Review Board Report (MRBR) (or equivalent document).

2. Maintenance instructions including those required for servicing, troubleshooting, the methods of removing and replacing items, system testing, ground running, symmetry checks, weighing, towing, jacking, storage limitations etc. This will typically be provided in the form of an Aircraft Maintenance Manual(s), Structural Repair Manual, Fault Isolation Manual, Illustrated Parts Catalogue etc. This information can be amended by the MTC holder (broad scope to amend the master copy) or maintenance organisations approved under DASR 145 (very narrow scope to modify).

3. Mandatory maintenance requirements in a segregated and clearly distinguishable section of the ICA, typically called the Airworthiness Limitation Section (ALS). The ALS contains the mandatory maintenance tasks and intervals, identified in the type certification process. Specific terminology and requirements for the ALS content will vary depending upon the PCC, however, the ALS will generally include mandatory requirements such as:

   i. Airworthiness Limitations (AwLs). AwLs encompass mandatory retirement / replacement intervals and mandatory inspection requirements (including inspection interval(s) and the inspection method). The term AwLs is most often associated with structural life limits and structural inspections that result from FAR/CS 2x.571 or the equivalent fatigue/damage tolerance requirements in military certification standards. However, the term AwL may also be used for other aircraft systems, such as mandatory replacement times for Electrical Wiring and Interconnect System (EWIS) components. As noted within AMC 21.A.41, the definition of an AwL 'interval' includes the interval metric (e.g. flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles, etc), and any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

   ii. Critical Design Configuration Control Limitations (CDCCLs). CDCCLs identify the critical design features such as proper wire separation, proper installation of a panel gasket, minimum bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCLs is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area. Design features that are CDCCLs are defined and controlled by FAA Special Federal Aviation Regulation (SFAR) 88 and preserves critical features of the aircraft needed for the Flammability Reduction Means to perform their intended function and prevent the occurrence of an unsafe condition.

   iii. Certification Maintenance Requirements (CMRs)[24]. CMRs are required inspections or maintenance tasks, and associated intervals, developed to achieve compliance with safety analysis requirements (e.g. FAR/CS 25.1309/29.1309, other discrete safety analyses requirements such as FAR/CS 25.671, 25.783, 25.901, and 25.933, and FAR/CS 29 equivalents). A CMR is intended to detect safety-significant latent failures (failures not known to the flight or ground crew) that would, in combination with one or more other

Superseded

specific failures or events, result in a hazardous or catastrophic failure condition. A CMR can also be used to establish a required task to detect an impending wear-out of an item whose failure is associated with a hazardous or catastrophic failure condition.

7.2.5.4 **ICA and the MTC.** Even though a complete set of ICA is required to obtain an MTC, only the ALS of the ICA (or equivalent terminology including CDCCLs and CMRs) forms part of the type design[25] however, they do form part of the Type Certificate. Stand-alone amendments to ICA, other than the ALS, are allowed to be changed by the MTC holder using a procedure agreed with DASA. Note: when completing a stand-alone change to ICA other than the ALS, the MTC holder is not exercising a privilege, but is instead fulfilling their obligation to keep the ICA current[26]. Changes to the ALS of the ICA must be processed as a change to the MTC, and should be classified as a major change[27].

7.2.5.5 **Identification of ICA.** The complete set of ICA for any product should be identified on the TCDS. Other information or instructions required for continuing airworthiness or safe operation of the aircraft, e.g. the approved Aircraft Maintenance Programme (AMP) or a Minimum Equipment List (MEL), is not ICA and is not subject to regulation applicable to ICA.

7.2.5.6 **ICA supplements.** Some major changes to an MTC, MSTCs, minor changes or minor/major repair designs may require variations to the product's ICA[28]. Variations to ICA arising from these design changes or repairs stand-alone from the product's master ICA and are published as an ICA supplement[29]. This gives the aircraft operating organisation the flexibility in managing the ICA applicable to their aircraft, depending on which approved changes and repairs they have chosen to embody. The approval of ICA supplements (including any changed or additional mandatory maintenance requirements) are encapsulated in the approval of the design change or repair. ICA supplements should be identified on the Supplemental Type Certificate Data Sheet, or on the minor change or repair design approval.

7.2.5.7 **ICA and the AMP.** The approved AMP in and of itself is not ICA for the simple reason the ICA requirements of the TCB do not mandate an AMP to be developed by the applicant for an MTC. The recommended maintenance tasks and intervals in the MRBR and the mandatory maintenance requirements identified in the ALS, combined with other requirements unique to each operator's role and usage (including data from a reliability programme) forms the basis for approval of each operator's AMP.

7.2.5.8 The maintenance instructions provided by the MTC holder (or ICA supplements provided by other design approval holders) will provide detail on how to carry out the tasks and inspections in the AMP and should only be amended by the MTC holder (or other relevant design/repair approval holder for ICA supplements) – see paragraph 7.2.5.4 above. Mandatory maintenance requirements must be clearly identified as mandatory in the AMP and cannot be extended without a corresponding approval of a major change to the MTC, or issue of an MSTC. Other ICA must be changed by the MTC holder using DASA agreed procedures. Changes to other recommended task and inspection intervals in the AMP can be approved by a CAMO using a procedure agreed with DASA, without requiring approval of a change to the MTC[30].

Responsibilities for ICA

7.2.5.9 **MTC holders**. The MTC holder is Defence's custodian of the product's ICA regardless of its original author. The MTC holder is responsible for the ICA's content, amendment and distribution to all organisations that operate the aircraft. The MTC holder can amend the ICA (in accordance with

Superseded

approval processes) and must distribute amendments to those organisations affected. If a change to a mandatory maintenance requirement is required, the change must be approved by DASA before distribution of the amendment. The MTC holder's processes for discharging its responsibilities for ICA (even if exercised through external organisations) must be included in the MTC holder's Type Continued Airworthiness Exposition (TCAE). Regardless of a product's TCB, the MTC holder should be able to identify all ICA and have that documented in the TCDS.

7.2.5.10 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their ICA supplements as the MTC holder has for the product's master ICA.

7.2.5.11 **Aircraft operating organisations.** Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided.

7.2.5.12 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable ICA and relevant ICA supplements. Maintenance organisations may locally modify ICA or ICA supplements using an approved procedure specified in their Maintenance Organisation Exposition (MOE) only for the purposes of efficiency, achieving the intent of the ICA when the instructions are deficient, or for the use of alternative tools/equipment[31]. A maintenance organisation must notify the MTC holder (or relevant design approval holder in the case of ICA supplements) when it has locally modified ICA, so consideration can be given to amending the master copy for wider distribution. A maintenance organisation modifying ICA for the purposes stated above does not constitute approving an amendment to the ICA (i.e. the source document) held by the MTC holder (or ICA supplement held by another design approval holder). Only the MTC holder or holder of the ICA supplement can approve amendments to ICA, noting the need to also seek approval of a major change to the type certificate if the amendment alters any mandatory maintenance requirements.

Non-Destructive Testing (NDT) ICA

7.2.5.13 NDT ICA are applied to ensure the airworthiness of aircraft through the inspection of aircraft structure and components. NDT ICA is often used as part of damage tolerance inspection regimes to ensure structural integrity. Consequently, it is critical to ensure that NDT ICA is developed by competent staff and provides sufficient information to enable NDT staff to perform inspections effectively.

7.2.5.14 NDT ICA provided to a DASR 145 Maintenance Organisation should include the following minimum information:

1. the inspection procedure to be used
2. the inspection area
3. the material type of the inspection area
4. the type of discontinuities to be detected.

7.2.5.15 Those organisations responsible for developing NDT ICA (DASR 21J Design Organisations, MTC holder) should consider using NDT Level 3 staff (as defined in EN4179) to verify that inspections are achievable, repeatable and meet the expected detection requirements of the design or repair. This is especially important where NDT ICA is used to support an AwL.

Superseded

7.2.5.16 The procedure for approving or modifying NDT ICA should be documented in the relevant organisation exposition. DASA recommends that personnel certified to NDT Level 3 in the relevant method be employed to approve and/or modify existing NDT ICA for application in specific circumstances. This accords with the requirements of European Standard EN4179.

Master Minimum Equipment List (MMEL)

7.2.5.17 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable / inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL cannot, in itself, be regarded as providing operational permission. It, however, can be the basis for the development of an individual Operator's Minimum Equipment List (MEL).

7.2.5.18 An MMEL forms part of the MTC. Approval of new MMEL or an MMEL amendment should be undertaken in accordance with the relevant DASR 21 Subpart[32]. Further guidance on MMEL development and approval in contained in Chapter 8.2.2, including information on:

1. typical characteristics and contents of an MMEL
2. options for developing an MMEL
3. suitable certification specifications for an MMEL
4. classification (major/minor) for changes to an MMEL
5. the DASA MMEL approval process.

7.2.5.19 Note that DASA is currently evaluating EMAR 21 version 2.0 changes that introduce the Operational Suitability Data (OSD) concept and requirements. MMELs are considered a category of OSD, and therefore, this section will be updated in the future once the relevant DASR 21 updates have been incorporated.

7.2.6 – Manuals

Basic Principles for Manuals

7.2.6.1 T**ypes of Manuals.** As per DASR 21.A.57, the holder of a type-certificate shall produce, maintain and update master copies of all manuals required by the applicable TCB.

7.2.6.2 Manuals (for the purpose of DASR 21.A.57) will fall into one of two broad categories:

1. **Aircraft Flight Manual (AFM).** The AFM is an authoritative source of information necessary for the safe operation of an aircraft. It contains the aircraft's operating limitations, operating procedures, performance information and other information and instructions necessary to operate the aircraft safely. Note that this information may be contained in several documents that contain limitations, information and instructions to ensure safe aircraft operation. Examples of other documents/ publications (in addition to the AFM) may include a Flight Crew Operating Manual, Mission Crew Operating Manuals and Pilot Handling Notes.

Superseded

2. **Manuals Containing ICA.** Certification codes require that the ICA must be published in the form of a manual or manuals[33]. The relevant certification code requirements will dictate the specific ICA content that must be published. Due to the broad and varied type of information that must be published, ICA for a particular aircraft type will usually be distributed through a variety of manuals, such as Aircraft / Engine / Propeller Maintenance Manual, Structural Repair Manual, Engine / Propeller Installation Manual. As noted above at paragraph 7.2.5.5, the MTC holder should be able to identify the publications and manuals that meet the intent of ICA requirements.

7.2.6.3 **AFM Guidance.** DASA AC 008/2020 contains detailed information on AFM content and approval, amending AFM content and use of AFM supplements. Further information specific to changes to type certificates which affect AFMs include:

1. DASR GM 21.A.91 which contains guidance for the classification of changes to AFMs
2. DASR AMC3 21.A.263(c)(2) which contains information on approval of minor changes to the type certificate which affect the AFM.

7.2.6.4 **Approval of Manuals.** Even though particular manuals are required by the TCB and therefore required to obtain an MTC, only certain contents of manuals will form part of the enduring MTC and / or require DASA approval. Contents of manuals that requires DASA approval includes:

1. The ALS of the ICA[34] (i.e. as published within a maintenance manual). Refer Section 7.2.5 for further guidance.
2. Mandatory AFM content (Operating Limitations, Operating Procedures and Performance Information). Refer DASA AC 008/2020 for further guidance.

7.2.6.5 Consequently, amendments to other manual contents is not a change to the MTC and can be undertaken by the MTC holder using a procedure agreed with DASA. Furthermore, as noted by AMC1 21.A.57, the process to update a manual may be separate from the process to approve or authorise the content of the manual[35].

7.2.6.5 **Manuals in the Context of Defence Aviation Orders, Instructions and Procedures (OIP) Management.** Manuals (for the purpose DASR 21.A.57) are part of the Defence Aviation OIP for the platform type. Lifecycle management of Defence Aviation OIP is discussed further in Section 6.7. A key message of Section 6.7 is that in addition to accuracy and completeness of OIP (a well-established principle in DASR 21), the usability / readability of OIP can cause or contribute to aviation safety hazards. Therefore, aviation safety hazards related to Defence Aviation OIP should be managed through an organisation's SMS. Note that this principle is consistent with DASR GM1 21.A.239(a) paragraph 3.1.5 which states that design organisations should "establish a system to collect in-service experience to be used for the improvement of the [maintenance and operating] instructions".

Responsibilities for Manuals

7.2.6.6 **MTC Holder.** In order to meet their obligation under DASR 21.A.57, the MTC holder should establish a system to produce, maintain and update manuals. As per DASR AMC 21.A.57, this system should ensure:

1. manuals are complete, current, and uniquely identified;
2. manuals contain their authority for use, document name, date of issue, and document/amendment status details;

Superseded

3. manuals are provided in a medium compatible with user requirements;

4. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL in ICA;

5. manual management records are accurately maintained, controlled, traceable and are accessible; and

6. manuals can be reproduced to any previous amendment status.

7.2.6.7 **Other design/repair approval holders.** Holders of an MSTC, minor change approval or repair design approval have the same responsibilities for their manuals or manual supplements as the MTC holder has for the product's master set of manuals.

7.2.6.8 **Aircraft operating organisations.** The operating organisations must manage and distribute the AFM and all other relevant manuals as part of their OIP Management System[36]. Continuing Airworthiness Management Organisations (CAMOs) are required to ensure all their maintenance service providers have access to all relevant manuals to the extent necessary for the scope of maintenance services being provided. The operating organisation should manage any aviation OIP related hazards through their SMS, and coordinate with the MTC holder, or applicable design organisation, as required to effect any necessary updates or improvements to manuals.

7.2.6.9 **Maintenance organisations.** Maintenance organisations conducting aircraft, engine, propeller or component maintenance are required to comply with all applicable manuals. Maintenance organisations shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data[37].

7.3 Production and Military Certificates of Airworthiness

7.3.1 Production Assurance in the Defence Aviation Safety Program

Aim

7.3.1.1 This chapter details how the production of aircraft components is assured in the Defence Aviation Safety Program (DASP). This includes what release documentation is acceptable under DASRs, and the means through which that documentation is obtained. This chapter only covers aircraft components and does not include whole aircraft. For whole aircraft see MCoA - Chapter 5.3 Annex O and MPO – Chapter 7.6.

Introduction

7.3.1.2 Production of Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured.

Superseded

Acceptable release documentation

7.3.1.3 The purpose of release documentation is to provide evidence that the manufactured component conforms to approved design data. Aircraft components to be installed on Defence registered aircraft must be accompanied by one of the following release documents:

a. DASR Form 1—Authorised Release Certificate.

b. A native or alternate component Certificate of Release to Service (CRS) issued within a recognised airworthiness framework (refer to Chapter 6.5 —Recognition of other Aviation Authorities for identification of a native and alternate component CRS).

c. For standard parts or items designated as specific equipment under DASR 21.A.303, a Certificate of Conformity from the item's manufacturer (refer AMC to DASR 145.A.42(a)(4)).

d. For components fabricated under DASR 145.A.42(c), certificates of conformity produced by the fabricating maintenance organisation that are acceptable to DASA.

7.3.1.4 Release documentation under (a), (b) or (c) above enables that component to cross organisational (and possibly national) boundaries between its manufacture and installation. Manufactured components that do not need to cross organisational boundaries can be installed with locally produced certificates of conformity that contain all of the technical information found on a DASR Form 1 per item (d) above.

DASA production assurance

7.3.1.5 DASA assures production of all Defence aircraft components using one of three mechanisms depending on the release documents required by continuing airworthiness regulations. This is depicted below in Figure 3.

Assurance through Recognition Frameworks

7.3.1.6 The majority of aircraft and aircraft component manufacture for Defence occurs outside Australia and is assured through DASA's recognition framework. To be installed on a Defence registered aircraft, these components must be accompanied by a recognised native (Form 1 equivalent) or alternate release certificate. Each DASA Recognition Certificate provides details on the unique conditions and caveats to be applied to validate the native or alternate release certificates. Production of components assured through recognition do not require a DASR Form 1 as it provides no additional safety assurance above what is inherent under the recognition framework.

Assurance through DASR 21 – production by Military Production Organisation Approval (MPOA) or letter of agreement holder

7.3.1.7 Components manufactured outside of a recognised airworthiness framework (other than standard parts, specific equipment or components fabricated under DASR 145.A.42(c)) require a DASR Form 1 for installation. To issue a DASR Form 1 an organisation must hold a Military Production Organisation Approval (MPOA) under DASR 21 Subpart G, or a letter of agreement to manufacture under DASR 21 Subpart F . In this instance, the award and oversight of MPOA is DASA's assurance mechanism for the production of such components.

7.3.1.8 The only organisations that DASA will consider for award of MPOA are those that do not hold a recognised approval that enables release of the manufactured components under a native or alternate artefact (see Chapter 6.5 —Recognition of other Aviation Authorities). That is, the

Superseded

requirements of DASR 21 Subparts G will be imposed on an organisation for the sole purpose of issuing a DASR Form 1 for the manufactured components.

Assurance through DASR 145 – fabrication by maintenance organisations

7.3.1.9 DASR Form 1 must not be used for components fabricated by maintenance organisations under their DASR 145 approval. A locally produced certificate of conformity must be used instead. DASA's assurance of this production is via the issue and oversight of the organisation's DASR 145 approval. A DASR 145 MO will only have this activity included in the scope of their DASR 145 approval if they can sufficiently demonstrate their capability to perform such fabrication. Note that unless otherwise approved by DASA, only the DASR 145 MO who fabricated the component can install this component.

Figure 3: Production Assurance and Release Documentation under DASP

Manufacture and release of test articles

Superseded

7.3.1.10 If a test article is manufactured to gather certification evidence, the responsibility to control the manufacture of that article and ensure it accurately reflects the proposed design data rests entirely with the organisation seeking certification of the design. For test article manufacture required to achieve certification of a major change, the Certification Programme should describe the production control processes that will be used by the applicant in producing the test articles. If DASR Form 1 is used to release a test article for trial installation in an aircraft, Block 12 of the DASR Form 1 must clearly state that the article is in conformity with non-approved design data. The manufacture of test articles for certification does not require MPOA under DASR 21 Subparts G or a letter of agreement under DASR 21 Subpart F. These principles also apply for minor changes being approved under MDOA privilege.

Manufacture of modification kits

7.3.1.11 Maintenance organisations approved under DASR 145 may fabricate modification kits and issue certificates of conformity provided (a) the scope of their DASR 145 approval allows it, and (b) the completed modification kit will be installed by the same maintenance organisation (and under the same DASR 145 approval) issuing the certificate of conformity. Modification kits meeting both criteria above must not be released using DASR Form 1, but must still be manufactured to the approved design data and have locally produced certificates of conformity attesting to that fact. Fabrication of modification kits for onward supply cannot be performed under a DASR 145 approval and constitutes series production that must be assured by either recognition or through DASR 21. Modification kits manufactured external to the installing maintenance organisation must be accompanied by a DASR Form 1, or release documentation acceptable to DASA through recognition.

Further information

7.3.1.12 Chapter 6.5 —Recognition of other Aviation Authorities

7.3.1.13 Chapter 8.3.4 —Acceptance of Aircraft Components

7.3.1.14 GM to DASR 21.A.303(c) – Officially Recognised Standards

7.3.1.15 AMC to DASR 145.A.42(c) – Acceptance of components

7.3.1.16 DASR 21 Subpart G – Military Production Organisation Approval

7.3.2 Military Certificate of Airworthiness (MCoA)

Introduction

7.3.2.1 This section supplements the DASP policy and provides guidance in support of DASR 21, Subpart H relating to MCoAs, their purpose, and their issue. The guidance included in this section discusses the MCoA concept and application from both an Australian Defence context, and where appropriate for the purposes of description, a civil aviation context.

7.3.2.2 Restricted MCoAs are also discussed where appropriate; however, such MCoAs are of limited utility in the Australian Defence context, and unlikely to be issued.

Purpose

7.3.2.3 A MCoA is an aircraft operating authorisation issued against an airframe tail that has the purpose to validate that the airframe conforms to the type design as specified on the Military Type

Superseded

Certificate (MTC). It serves as the final assurance artefact that the airframe is in a state of airworthiness per the inherent level of safety afforded by the type design and the underlying MTC basis. It is enabled by an organisation or operator, who has registered the airframe on the Australian Defence register, and has ensured conformity through meeting various requirements.

7.3.2.4 A restricted MCoA will follow the same rules albeit that the airframe shall conform to a restricted MTC and to specific airworthiness requirements ensuring adequate safety.

Application

7.3.2.5 MCoAs in the Australian Defence context can only be issued by the DASA or a Delegate of the Safety Authority (DoSA). The release document is via a DASR Form 25 Military Certificate Of Airworthiness and applies only to aircraft that are registered on the Defence register in Australia.

7.3.2.6 An application for a MCoA shall be made by an eligible organisation via DASR Form 25a - Application for Certificate Of Airworthiness. In the Australian Defence context, the MAO and/or their CAMO are eligible to be applicants for a MCoA as holders of a MAOC. Aircraft that are Non-Defence Registered (NDR) are not subject to Airworthiness DASRs, and are subject to a separate airworthiness requirements, typically under the applicable airworthiness Civil Aviation Safety Regulations. See further DASP Vol 3 guidance on NDR at Chapter 6.1.3.

7.3.2.7 A MCoA application shall be made in a form and manner established by the Authority (DASA in Australia) of the State of Registry[38], per DASR.21.A.174(a). When considering a MCoA application, the Authority will consider all documentation in support of the state of the airframe at application. This has particular significance for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence.

7.3.2.8 The MCoA application presents documentation that the aircraft conforms to the type design approved under the relevant MTC. The required documentation, artefacts, reports and historical evidence (if applicable) to support the application shall be in accordance with DASR.21.A.174(b). Any deviations from the certified type design must be approved by an appropriately authorised design organisation.

7.3.2.9 For used aircraft, DASA will require a Military Airworthiness Review Certificate (MARC) conducted in accordance with DASR Part M regulations before issuing an MCoA. The MARC review is a physical survey of the aircraft and supports issue of the MCoA to satisfy DASA that the submitted documentation is reflective of the physical aircraft. The MARC process is further discussed as part of paragraphs 7.3.2.15 and 7.3.2.16 of this section.

Issue of a MCoA

7.3.2.10 A MCoA can only be approved and issued if all modifications, repairs and/or production deviations implemented on the airframe are approved under DASR 21, or under a recognised national civil or military airworthiness framework.

7.3.2.11 For new civil or commercial derivative aircraft (CDA) delivered to Defence, the acquisition project should seek a civil export CoA from the Civil Aviation Authority (CAA), via the prime aircraft OEM, where a civil Type Certificate (TC) is in place. This export CoA needs to be obtained prior to transfer to the Defence register, and forms the foundation for the issue of an Australian MCoA. Failure to obtain an export CoA for a civil or CDA may limit DASA's ability to issue an evidence based MCoA.

7.3.2.12 For instances where a civil Type Certificate (TC) is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA CoA can be demonstrated if a CAA

Superseded

authorised delegate provides a document that attests the aircraft would be eligible for issue of a Standard or Export CoA, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard CoA under DASR 21.A.172, DASR 21.A.173 and DASR 21.A.174. DASA-DIA staff should be consulted for specific advice.

Validity and Amendment

7.3.2.13 The MCoA Holder (typically the MAO) is responsible for the continuing validity of an MCoA. A MCoA may be amended or modified only by the Authority (DASA in Australia) of the State of registry[39]. A MCoA may be issued for an unlimited duration, and remains valid subject to the conditions described in DASR.21.A.181.

7.3.2.14 Additionally, the ongoing validity of a MCoA requires that damage be assessed, and all applicable modifications and repairs carried out, using as appropriate the data requirements of DASR.M.A.304.

7.3.2.15 The validity of a MCoA is periodically renewed via the MARC process, as per DASR.M.A.901. This involves an airworthiness review of the aircraft and its continuing airworthiness records. The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial MCoA. The validity of MARCs issued by a CAMO may be extended twice for a period of one year each time if the aircraft has been in a controlled environment.

7.3.2.16 The MAO is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless the MCoA and the MARC remain valid, as per DASR.M.A.201. If a MCoA becomes invalid, the MAO must return the aircraft to an airworthy condition before operating the aircraft or seek an alternate flying authorisation. A new MCoA is only required if the aircraft is being returned to the Defence register after removal, or the certificate is revoked by the Authority (DASA in Australia) of the State of registry[40]

Useful Readings

1. DASA Website (Content relating to MCoAs)
2. DASR Form 25a – Application for Certificate Of Airworthiness
3. DASR 21 – Aircraft Design, Production and Certification
4. DASR M – Continuing Airworthiness Management

7.4.1 Military Type Certificate Holders

Introduction

7.4.1.1 A Military Type Certificate Holder within the DASR framework provides Defence a suitable entity to 'hold' the Type Certificate. Holding the type certificate involves undertaking certain obligations that ensure the type certificate is managed and that the inherent safety that the platform type certification basis affords is maintained.

7.4.1.2 Unlike civil TC obligations, Defence MTC obligations are not enforceable via national legislation, meaning there is no enduring obligation under law for foreign organisations to manage

Superseded

the basis of certification through the product's life cycle. Therefore, in the application of DASRs, the Defence MTCH is a government organisation, most likely the organisation that acquired the product under contract.

Application of DASR provisions for the MTCH

7.4.1.3 The following principles guide the application of the above regulatory provisions:

a. **Principle 1.** DASA issues an MTC for Defence registered aircraft types. Unlike the civil context, a separate TC for the aircraft power plant and/or propeller has not been issued thus far and is nominally included as part of the platform TC.

b. **Principle 2.** DASA shall only issue MTCs to suitable Commonwealth government organisations (the holding organisation) to hold the MTC. The holder is responsible for ensuring that holder functions/obligations are executed. In the Defence context, the MTCH is able to achieve the regulatory intent via a direct or indirect arrangement with the aircraft/engine OEM.

c. **Principle 3.** Military Supplemental Type Certificates (MSTCs) will also be held by the MTCH or holding organisation, with the MTCH responsible for carrying out all MSTC functions/obligations. An MSTC in the Defence context can supplement the MTC for managing sub-fleets, significant changes to the TCB, large and complex changes. They are not used to achieve a commercial outcome such as in the civil design domain.

MTCH Safety Objectives

7.4.1.4 The MTCH has two aviation safety objectives:

a. To support the safe operation of the aircraft type by command units. Achieving Defence strategic objectives requires continuous capability enhancement, and at times, the conduct of operations at markedly elevated levels of risk. In addition, operators of aircraft will require explanatory information, advice and data to operate the type safely. The MTCH must have access to type design data, or support arrangements with the aircraft/engine OEM for the provision of designs and advice to support safe operation of the type.

b. To continuously monitor the type in service and ensure the ongoing validity of the Type Certificate, by investigating issues and providing corrective actions where required. The initial certification of a type establishes the known and understood level of safety inherent in the standards against which it was certified. Through the life of the type, latent hazards within the certified design, not identified during initial certification, may emerge requiring some action to address. Similarly, the use of the aircraft may vary and new designs be incorporated. Regardless, the MTCH has the high level objective to maintain the level of safety intended during initial certification.

Australian Context

7.4.1.5 The MTCH must account for the unique Defence context where the MTCH is not the OEM of the type and noting that the DASR are an amplification of the broader Work Health and Safety[41] obligations for the Defence aviation environment. In this context, the MTCH is the steward of the Defence type in service. To fulfil this role:

1. The MTCH should be broadly aware of all historic and emerging hazards relevant to their type[42]. This awareness requires:

Superseded

i. The collection of relevant aviation safety information (occurrences etc.) from within the Defence aviation system;

ii. The collection of relevant aviation safety information (occurrences, service bulletins, airworthiness directives etc.) from operators and authorities of similar types; and

iii. Consideration and conduct of additional verification activities(such as test programs) to generate further data independently and as necessary.

2. The MTCH is to lead the risk management of the type for the life of type, from initial certification to withdrawal from service. This leadership includes:

i. Ensuring operators are made, and remain, aware of the hazards extant in their type;

ii. Ensuring that essential risk controls (both technical and operational) pertaining to the safety of the type are, and remain, effective;

iii. Leading local efforts to eliminate or further minimise known hazards;

iv. Influencing external organisations (such as OEMs, joint user groups, co-operative partnerships etc.) to eliminate or further minimise known hazards.

MTCH Structure

7.4.1.6 To support these safety objectives, the MTCH organisation is broadly structured around two key systems, as detailed in Figure 4. These systems are responsible for the interactions regulated by DASA and are required elements of the MTCH supporting organisation.[43] They are:

a. The Safety Management System (SMS). This system ensures that the MTCH will collect operational data, analyse that data, investigate potential safety concerns and provide corrective actions.

b. The Design Assurance System (DAS). This system provides products (for example Service Bulletins correcting deficiencies, publication updates etc.) to operators of the Type.

Superseded

Figure 4: Safety Structure pyramid

7.4.1.7 Note that the safety management and design assurance systems are generic and are broadly applicable to all MTCH structures and implementations noting their varying constructs. It is likely that in implementing the systems, each MTCH through their partner organisation will employ business processes specific to their context. For example, the MTCH may rely upon long standing Defence engineering processes such as Technical Information Review, System Safety Working Groups and Configuration Control Boards to achieve the SMS intent. Similarly, the DAS of a foreign design organisation may not be entirely aligned with the requirements described in DASR 21.A.239 invoking the need to utilise Authority recognition arrangements.

7.4.1.8 Each organisation that holds a Type Certificate will be different and the model outlined in Figure 4 will not be a one-size fits all construct. It is appropriate that each organisation will implement these functions with different size, scale, or complexity, dependent on their need. For example, a CDA

Superseded

may rely on a large portion of sub-contractor products from civil aircraft OEMs operating under legislated civil safety constructs, and thus will not require a large compliance verification element.

MTCH Responsibilities

7.4.1.9 In the Australian Defence context, the government organisation holding the MTC is usually relatively small and is supported by one or more other organisations (contractors, foreign Defence organisation, OEMs etc.). As a result, responsibility for the conduct of MTCH obligations is often vested with these support organisations. This has led to confusion regarding accountabilities. To clarify:

a. Regardless of the organisational construct, the government organisation is the MTCH, and is accountable for all activities undertaken by its partners with respect to the obligations of the MTCH.

b. As such, it is unlikely that a passive compliance assurance relationship between the government organisation and its partners will suffice. DASA needs to be assured that the MTCH is able to meet its obligations – this may require the government organisation to lead key MTCH activities and be active in resourcing, prioritising, and implementing MTCH activities to ensure continued airworthiness and supporting safe operation of the type by the operator.

Eligibility to hold an MTC

7.4.1.10 A government organisation can be eligible to hold an *MTCH* under one of three regulatory provisions when applying for an MTC:

a. DASR 21.A.14(a). This provision is applicable where the government organisation has demonstrated its capability by holding a Military Design Organisation Approval (MDOA), and thus meets the requirements of DASR Subpart J and is capable of performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources.

b. DASR 21.A.14(b). This provision is an exception to subpart (a) where the organisation has no demonstrated capability, but may be able to obtain an MDOA in the future, and thus alternative procedures can be used in the starting phase as an organisation moves toward an MDOA or where there are limited duration design activities that may be required (such as initial certification of a platform).

c. DASR 21.A.14(c). This provision is an exception to subparts (a) and (b) where the government organisation is not capable of meeting the requirements of Subpart J and/or performing design activities (including the finding and declaration of compliance) across the key design disciplines relevant to their platform using internal or organic resources. In this instance, the government organisation is entirely reliant upon partners to meet the requirements of Subpart J.

Initial Assessment of MTCH capability

7.4.1.11 In the Defence context, assessment of the capability of the MTCH occurs in parallel to certification of the aircraft type, but must be completed before a Type Certificate can be awarded to the MTCH. DASA assessment of MTCH capability will include:

Superseded

a. An initial assessment of the organisation's personnel, processes, resources and support arrangements to establish that the MTCH will be able to perform/carry out the MTCH obligations outlined in DASR 21 and that the processes are present and suitable.

b. Supplementary on-site activities such as observing System Safety Working Groups, or reviewing Failure, Malfunction, and Defect data collected, in order to establish that the organisation is operating and effective.

c. An assessment of the MTCH Type Continued Airworthiness Exposition (TCAE). The TCAE describes all MTCH arrangements in order to execute the holder obligations and maintain the integrity of the type certificate. The broad content of the TCAE shall include, but is not limited to the description of the MTCH framework, design support arrangements, processes, procedures, governance, resources, and MAO/CAMO interfaces in place to meet the regulatory intent for the platform. In addition, the TCAE should include a detailed compliance matrix explicitly describing their arrangements in place to execute each MTCH obligation. The TCAE is the appropriate document where nuances particular to the platform and/or MTCH arrangements shall be described for Authority awareness and/or proposed alternative means of compliance.

MTCH Oversight & Enforcement

7.4.1.12 Oversight and Enforcement on the MTCH will be conducted by DASA as assurance activities in either a routine or a targeted format. The activities will have the objective to assess a MTCH organisation in their execution of MTCH obligations and functions. The scope of the assessment may involve any of the explicit and/or implicit obligations and may be a result of feedback received to warrant an assurance activity. Findings will be issued for non-compliances; however, the DASA team carrying out the assessment also looks to provide outcomes aiming to improve the overall effectiveness of the MTCH organisation. Oversight and enforcement on the MTCH arrangement will be based on the MTCH executing their obligations in accordance with the regulatory intent and their TCAE.

7.4.1.13 Further guidance on the DASA oversight and enforcement framework is provided in DASP Vol 3, section 4-1-5

MTCH Obligations

7.4.1.14 Within the DASRs the MTCH have the following obligations.

DASR 21.A.3A – Failures Malfunctions and Defects

7.4.1.15 This has three aspects which must be undertaken:

1. DASR 21.A.3A(a). Have a system for the collection, investigation and analysis of data relating to failures, malfunctions, defects or other occurrences, which cause or might cause adverse effects on the airworthiness of the product.

b. DASR 21.A.3A(b). Report to DASA occurrences, which may result in an unsafe condition.

c. DASR 21.A.3A(c). Investigate the root cause of occurrences and implement actions to eliminate or otherwise minimize any resulting hazards and their associated risks

Superseded

SFARP. If DASA finds action is required to correct the deficiency, the MTCH shall submit the relevant data to DASA.

7.4.1.16 **Reporting to DASA.** Where the MTCH assesses that an occurrence of a failure, malfunction or defect "may result in an unsafe condition[44]" that occurrence must be reported to DASA. Note this is a more limited and very specific subset of all occurrences that must be collected and considered by the MTCH. For these 'reportable occurrences' the MTCH must also report the results of MTCH investigations and any proposed action by the MTCH to DASA.

7.4.1.17 **Investigate and implement actions.** In the event that an unsafe condition may exist, the MTCH is obliged to take appropriate actions and be pro-active to eliminate and/or minimise the associated risks so far as reasonably practical. DASR 21.A.3A does not require the MTCH to consult DASA for review or approval prior to initiating any analysis, investigation and/or remediation actions. DASA provides additional, external and independent assurance of the actions of the MTCH but does not lead the MTCH in satisfying DASR 21.A.3A.

7.4.1.18 Further guidance on Occurrence reporting is provided in DASP Vol 3, section 7-4-2 and section 6-3

DASR 21.A.3B Airworthiness Directives

7.4.1.19 Where DASA determines an Airworthiness Directive (AD) is required for mandating actions for remediating an unsafe condition the MTCH must:

1. propose appropriate corrective actions and/or inspections

b. provide operators of the type all data required to comply with the AD

c. provide solutions/data to DASA to correct the deficiency and restore aircraft safety. This may include additional data to that provided under DASR 21.A.3A, specifically to support the release of an AD.

7.4.1.20 DASA's decision to release an AD may occur immediately following an occurrence or many weeks, months, or even years later. Per paragraph 7.4.1.17, the MTCH is to proceed with actions to eliminate the hazard or minimise the risks independently of DASA. This provision exists to support DASA mandating action proposed by the MTCH, not to direct the MTCH in the execution of their role.

7.4.1.21 Further guidance on Airworthiness Directives in the ADF context is provided in DASP Vol 3, section 7-4-3

DASR 21.A.4 Coordination between Design and production.

7.4.1.22 The MTCH shall coordinate between design and production organisations, to provide production data, as well as receive failure/malfunction/defect data from production organisations.

7.4.1.23 Where whole aircraft, parts and/or modification kits etc. are being produced, the MTCH arrangements are to ensure that the design and produced article align. For example, if the design is changing (materials/dimensions/finishing etc.) then that information will be provided to the organisation producing the item. Similarly, there cannot be changes to the item being produced without the knowledge of the MTCH and/or the responsible design organisation supporting the platform. Finally, this agreement must ensure the communication of occurrences, especially from the production organisation to the MTCH and/or their design organisation.

DASR 21.A.42 Integration

Superseded

7.4.1.24 The MTCH shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft type.

7.4.1.25 This requirement places the obligation on the MTCH to consider the impact to airworthiness on integrating products, weapons or other systems, onto the aircraft. As the MTCH is also the only organisation eligible to apply for a major change to the type, the DAS of the MTCH (in cooperation with their partner organisations) must be sufficient to enable this. This obligation is not limited to aircraft components, but as expanded upon in Paragraph 7.4.1.49 for role equipment as well.

DASR 21.A.55 Record Keeping

7.4.1.26 The MTCH shall hold all relevant design information necessary to ensure the continued airworthiness of the type and make this available to DASA as required.

7.4.1.27 In the Defence context, the MTCH will not be the OEM, and the regulations cannot assume the MTCH created the type design data. Thus, this regulation ensures that the MTCH can access all data necessary to support the type design and ensure that major changes to the type continue to meet the appropriate airworthiness requirements.

DASR 21.A.57 Manuals

7.4.1.28 The MTCH shall produce, maintain and update master copies of all manuals required by the TCB and provide copies, on request, to DASA.

7.4.1.29 A manual under this regulation is part of the type design considered during type certification. It follows that any manual assessed during certification is therefore required by the TCB under this regulation. Such manuals contain content critical to keep the type airworthy or to operate the type safely within its designed limits. An example of a manual is the Aircraft flight manual, an engine manual[45] or a propeller manual[46].

7.4.1.30 For the purpose of initial certification, the MTCH is to provide manuals applicable to the ADF type. Thus, manuals produced for aircraft/products certified under other airworthiness authorities must be evaluated prior to releasing under the DASR. For the purpose of maintaining initial airworthiness in line with OEM issued updates, the MTCH must maintain and update master copies by enabling changes to be evaluated. Prior to promulgation, such change proposals will;

a. consider applicability to any unique ADF aspects or environment.

b. classify the content being considered.

7.4.1.31 The regulation implies that the MTCH will execute the obligation in a timely manner commensurate to the (safety) criticality of the update and any OEM advice.

7.4.1.32 Further guidance on the Aircraft Flight manual in the ADF context can be found in AC 008/2020

DASR 21.A.61 Instructions for Continuing Airworthiness

7.4.1.33 The MTCH shall provide the Instructions for Continuing Airworthiness (ICA) required by the TCB to operators. Changes to that ICA will also be provided to all operators.

7.4.1.34 ICA detail the methods, inspections, processes, and procedures necessary to maintain the aircraft and/or products in an airworthy condition and within the usage parameters of the aircraft

Superseded

design. ICA are an airworthiness requirement of the TCB and are prepared at initial certification by the appropriate manufacturer for each product, part or appliance. The regulation requires the MTCH to furnish the complete set of ICA to the Operator and to maintain the currency of the ICA for the ADF Type.

7.4.1.35 In the Defence context, this has particular relevance for the MTCH as often type design data will be produced under other regulatory systems and ICA will not be clearly identified. Part of the responsibility of the MTCH under this regulation is to identify and manage the ICA for a type where the OEM documentation has not explicitly referenced which instructions are ICA. This is usually where the aircraft is largely of military design, and in these cases, the MTCH will require an established relationship with the OEMs to enable clarification of maintenance documentation, when it cannot be determined from inspection what maintenance data is ICA.

DASR 21.A.44(b) - Identification of Products, parts and Appliances (DASR 21 Subpart Q)

7.4.1.36 Identification of products, parts and appliances. The MTCH shall:

a. specify how parts are to be identified.

b. specify how identification data (plates/etchings etc.) are to be handled.

c. identify critical parts.

7.4.1.37 In the context of EMAR, this obligation leverages a responsibility onto the MTCH to specify part marking schemes to their production organisations, who in the European context could be located in multiple countries. However in the Defence context the MTCH will in most cases rely on existing design organisation/production organisation arrangements in foreign countries with part identification already in place. To achieve the intent, the MTCH will appropriately leverage the OEMs part identification systems/schemes and only if applicable, specify the manner in which locally produced products, parts and appliances are identified.

7.4.1.38 Further guidance on Production in the ADF context is provided in DASP Vol 3, section 7-3-1.

DASR 21.A.44(c) - Continued Integrity of the Aircraft Structure and Propulsion System

7.4.1.39 DASR 21.A.44(c) requires that the MTCH shall ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. Acceptable means of compliance for this regulation is provided in AMC 21.A.44(c). Chapter 6.6.3 provides extensive guidance to support application of AMC 21.A.44(c).

MTCH Obligations– Implicit Obligations

What is an implicit obligation?

7.4.1.40 In addition to the eligibility criteria listed at DASR 21.A.14(c) and the obligations listed at DASR 21.A.44(c), the regulations also include implicit obligations and expectations for the MTCH. That is, while an obligation has not been expressed, as “the MTCH must….” the operation of a regulation (or the AMC to that regulation) clearly depends upon the MTCH performing a function to ensure the continued airworthiness of the type or the safe operation of that type.

DASR 21.A.113 and 115

7.4.1.41 An applicant for a Supplemental Type Certificate (STC) shall prepare data to support the application independently or as part of an arrangement with the MTCH. In the defence context, the MTCH will hold all STCs and is therefore pivotal to enable an STC application through a ‘no technical

Superseded

objection' assessment and to provide the necessary design data. The advice provided by the MTCH shall enable for the safe integration by multiple design organisations of STCs onto the platform.

DASR 21.A.445 Subpart M Repairs

7.4.1.42 The MTCH is to support organisations performing major and minor repairs including unrepaired damage assessments by providing adequate information to enable their evaluation.

7.4.1.43 The MTCH may commission/initiate the activities through their supporting design organisation with appropriate approvals in place to design structural repairs. The MTCH will enable the provision of sufficient technical data where necessary.

AMC 21.A.709(b)(3) Approval of Flight Conditions

7.4.1.44 Flight Conditions underpin the issue of MPTFs as alternate authorisations assuring operations outside the strict requirements of the TCB and DASR M requirements and often at elevated levels of risk.

7.4.1.45 To make sure all reasonable knowledge is considered in the risk assessment supporting Flight Conditions and MPTF, the MTCH should be consulted to provide technical assessment inputs given access arrangements to type design data. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support/facilitate these assessments.

7.4.1.46 While not specifically identified, the reference to 'a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information' is usually read to mean the MTCH or OEM.

GM M.A.301(a)(2).2 Credible Data

7.4.1.47 Where operations are not at elevated levels of risk, but a defect remains preventing the release of the aircraft back to service, an operator may use 'credible data' for the deferral of defects in accordance with DASR M.A.301. Since the list of credible data includes type certification data, the MTCH would be a likely source of such information and be expected to provide it to operators as required. In the Defence environment and noting other regulatory guidance, the MTCH organisation shall support these assessments.

GM ORO.75 Use of Role Equipment

7.4.1.48 The MTCH is expected to support operators in the determination as to whether a piece of equipment is considered role equipment or a certified part.

7.4.1.49 Whilst the MAO has direct responsibility for integrating role equipment onto their aircraft, it is expected that they utilise technical assessments when appropriate. As the MTCH has access arrangements for assessments using type design data, the MTCH shall support the operator to ensure the part or equipment is integrated onto the type with appropriate consideration.

DASR AO.GEN.05(c) Management of Orders Instructions & Publications (OIP)

7.4.1.50 The MAO is required to have a documented agreement with the MTCH and seek MTCH support for control of air operational OIP and the use of Foreign Source Data (FSD).

7.4.1.51 This introduces an implicit requirement upon the MTCH to collaborate with the MAO via an agreement for review and appropriate approval of aviation operational OIP and FSD prior to use. This has particular relevance to the Aircraft Flight Manual (AFM). In the Defence context, the management of the AFM is complex with the one document having multiple uses and regulatory requirements. As

Superseded

a result, the MTCH shall be pivotal to ensure aviation operational OIP and FSD activities do not inadvertently alter content critical to compliance with the type certification basis.

7.4.1.52 Chapter 6.7 of the DASP Manual Volume 3 provides further guidance for OIP.

7.4.2 Continued Airworthiness Occurrence Reporting

Introduction

7.4.2.1 This section provides guidance to Occurrence reporting (OR) in the continued airworthiness domain (for design and production). This section is subordinate to the wider OR guidance provided as part of DASP Vol 3, chapter 6.3 which describes the wider OR framework.

7.4.2.2 Under DASR Part 21, organisations holding an approval have a requirement levied onto them to collect data on, conduct investigations of and provide analysis on any Failures, Malfunctions, Defects (FMD) or other occurrences, which creates or has the potential to create an unsafe condition. An unsafe condition is a state where an adverse effect on airworthiness exists being the result of a compromised or potentially compromised type design. Any occurrence that is assessed to have resulted in, or may result in, an unsafe condition[47],[48] must be reported to DASA and other organisations required by the implementing regulations.

7.4.2.3 Occurrence reporting by DASR 21 approval holder(s) is an essential continued airworthiness activity and enables risks and hazards associated with the type design to be identified and addressed in accordance with DASR 21.A.3A(a). All organisations that hold a DASR Part 21 approval including (but not limited to) the platform Military Type Certificate Holder (MTCH), Subpart J design organisations, Subpart F/G production organisations are obligated to have systems in place to achieve the regulatory intent of occurrence reporting.

Collecting FMD Data

7.4.2.4 The holder organisations operating under the DASR Part 21 regulations are expected to have arrangements in place that collects technical information from a spectrum of local and international sources/networks (civil and military) relevant to their platform. This has the primary purpose to access real time (critical) design related safety information for the product/part or appliance. The technical data may be directly applicable to types operated by the ADF or may require some applicability assessment before being considered for further consumption.

7.4.2.5 Collection of FMD data either directly from the ADF fleet or indirectly from other operators also has the purpose to provide the Holders with ongoing data that can be evaluated for patterns and/or reoccurrences. Such evaluation may identify failure issues that present as disparate, but may be linked. This level of analysis has the objective to identify latent design or manufacturing defects before they are realised during operation.

Occurrence Investigations in the DASR Part 21 Domain

7.4.2.6 In the Defence context, investigations involving FMD directly attributable to the type design and/or manufacturing are conducted by the platform MTCH under obligations in DASR 21.A.3A. Under this regulation, the MTCH must with all reasonable practicality initiate appropriate levels of investigation within their design support network to determine the root cause. This may take the form of reaching back into the OEM to evaluate the circumstances and determine the likely cause.

Superseded

Similarly, the production organisation or the part/component OEM may be consulted where a manufacturing issue needs analysis.

What constitutes a reportable Occurrence?

7.4.2.7 A FMD occurrence may originate from an issue identified on the ADF type or from a foreign fleet that is closely related to the ADF type. However, the immediate type design/airworthiness impacts from an FMD occurrence in the Part 21 domain are not always apparent and often requires detailed investigation to be completed. An occurrence may not be identifiable until investigation results are reported.

7.4.2.8 Similarly, there are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not and what actions/advice is required to manage the risk (perceived or real). The Authority always encourages the community to be conservative in their judgements and provide an occurrence report - voluntary occurrence reports are an option.

7.4.2.9 In the Defence construct, the MTCH organisation is expected to receive relevant technical information (TI) from a range of sources including other operators (military or civilian, where relevant). In assessing the external TI, the MTCH must verify applicability to the ADF type and consider the ADF CRE. Once verified as applicable, a reportable occurrence is warranted satisfying any of the following conditions where the incoming technical information;

1. describes a design issue (real or potential) that leads to an unsafe condition; or
2. describes a safety concern that has a real or perceived airworthiness impact and requires some time compliance action; or
3. originates from the type OEM or Civil Aviation Authority (CAA) /Military Aviation Authority (MAA) regulator mandating an action with an accompanying risk assessment.

7.4.2.10 An occurrence on an ADF aircraft may require the outcome of an investigation before a determination can be made to report under DASR 21.A.3A. However, once the locally sourced TI is received, the same conditions of sub-paras 9a and 9b apply to determine if a reportable occurrence is warranted.

When and how to Report

7.4.2.11 Reporting occurrences to the Authority has the intent to make the Authority aware of an event that has caused or has potential to cause an unsafe condition in the current timeframe. This enables the Authority to begin their assurance function in real time and allow for intervention (where necessary) without undue delay. The reporting time period for the MTCH community is 72 hours for an occurrence once deemed reportable. It is acknowledged that the time between the actual occurrence and the MTCH being fully informed of an unsafe condition existing on their type can vary depending on many factors. Therefore, the 72 hour timeframe begins at the point where the MTCH organisation has enough information to make an informed determination of the airworthiness impact, based on the root cause (if known), type applicability, CRE considerations, etc.

7.4.2.12 The form and manner of which reportable occurrences are provided to the Authority from a MTCH organisation is via a DASR Form 44. The report shall contain (where practicable) all available information on the manufacturing or design deficiency, the results of any investigation to date, any

Superseded

actions they are taking or propose to take in order to correct the deficiency along with the submission of relevant data to support the actions.

MTCH Actions to address an unsafe condition resulting from FMD

7.4.2.13 The immediate actions that the MTCH organisation may take to eliminate and/or minimise the risks associated with the type design hazard will vary on a number of factors. However, the likelihood/consequence risk assessment will ultimately dictate the level of attention, timeliness, advice and resources that are attributed to the actions. Actions taken by the MTCH to address an unsafe condition should never rely on an Authority decision gate to implement.

7.4.2.14 The Authority will review the occurrence details and MTCH actions to gauge that the risk to aviation safety has been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) by the MTCH. This is not a one-off assessment; rather the unsafe condition determination by the MTCH organisation is an ongoing safety assurance activity conducted by DASA. It commences upon receipt of the occurrence and closes upon DASA's decision that the risk no longer warrants on-going monitoring by DASA.

7.4.2.15 Where the Authority does not have confidence that the design hazard has been eliminated or otherwise minimised SFARP, or if addressing the hazard requires development of a modification and subsequent fleetwide incorporation, then the DASA Airworthiness Directive (AD) process under DASR 21.A.3B may be invoked.

Structures and Propulsion Systems Guidance.

7.4.2.16 Structures and propulsion system specific considerations for the collection, investigation and analysis of failure, malfunctions, defects and other occurrences are addressed in AMC1 21.A.3A(a). Supporting guidance can be found in Chapter 6.6.3.

7.4.2.17 Specific guidance regarding risk analysis for propulsion systems (as could be used to develop the proposed corrective action(s) for a design- or manufacturing-related unsafe condition) is contained in Annex E to Chapter 7.2.

7.4.3 Airworthiness Directives (AD) in the DASP

Introduction

7.4.3.1 An Airworthiness Directive (AD) is *'a document issued (or adopted) by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised'* [50]. Therefore, an AD is a key mechanism available to DASA to communicate mandatory action, in instances when an unsafe condition is determined to exist in an aircraft (and is likely to exist or develop in other aircraft) as a result of a deficiency in an aircraft's type design or conformance thereto.

7.4.3.2 This chapter sets out guidance for the use of ADs in the DASP. The guidance leverages civil practice, and expands on the regulatory criteria for the issue of an AD and key elements to execute the policy for the Defence aviation context.

Occurrence Reporting and Airworthiness Directives

Superseded

7.4.3.3 Whilst Defence-registered State aircraft are type-certified within the DASP (via the issue of a Military Type-Certificate (MTC)), and individual aircraft that conform to that type are awarded a Military Certificate of Airworthiness (MCoA), this is not a guarantee of enduring safety from a continued (and continuing) airworthiness perspective. This therefore necessitates that the potential for any unsafe condition (that may arise in-service) must be carefully monitored and managed.

7.4.3.4 Further to Chapter 7.4.2 (Continued Airworthiness Occurrence Reporting), respective Approval Holders[51] under the DASP have certain obligations[52] to DASA for the identification, communication and rectification of safety-related issues. DASA's role is to independently assure that the actions of the regulated community, in response to reportable/reported in-service occurrences affecting Defence-registered aircraft, are commensurate with the safety risk, and credible and defensible. This directly supports continued assessment of the validity of DASA-issued MTCs (/MSTCs) and/or MCoAs, and in certain instances, DASA's oversight of safety-related occurrences will need to consider if a DASA-issued AD is necessary to assure the safety of Defence aircraft (by explicitly approving and mandating the required corrective action to address an unsafe condition).

7.4.3.5 The nature of these occurrences, and the attendant severity and risk, vary considerably. In a practical sense, not every reported occurrence will (or should) result in an AD. In certain situations, it is entirely appropriate that lower-level safety-related issues reported to DASA by a sustainment enterprise (under DASR 21.A.3A) are just monitored (until defined closure criteria is met), if they do not actually constitute an unsafe condition *perse*.

Unsafe Condition Assessments (UCAs)

7.4.3.6 During the conduct of DASA's 'spectrum of assurance' for reported occurrences, the airworthiness impact to either the type, or individual aircraft of that type, must be considered. In every instance, what is unequivocally required is the determination of whether an unsafe condition exists (or not). Therefore, investigations and assessments conducted by Approval Holders within the regulated community must consider whether an unsafe condition exists; for this is not only DASA's function, but a shared responsibility. DASA's role is to be engaged with Approval Holders and determine/confirm[53] whether (or not) an unsafe condition exists (based on reports, investigations and assessments by, and engagement with, the regulated community[54]). DASA should generally not be conducting the UCA itself; for this is best-placed with respective Approval Holders[55] under DASRs (based upon type knowledge and understanding). That said, DASA always reserves the right to do so (if required).

Unsafe Conditions

7.4.3.7 Whilst DASR 21.A.3B(b) provides AMC and GM for what constitutes an unsafe condition, practical application is not always straight-forward in every instance, for discerning (and agreeing) which conditions are truly unsafe requires the exercise of professional judgement (by both Approval Holders and DASA). Moreover, the determination of what is truly an unsafe condition cannot be defined for every situation and scenario, for each platform (and DASA's assurance thereof). Generic aspects that will need to be considered are the:

1. nature of the deficiency/condition (and the associated consequence/likelihood of hazards)
2. elevated level of risk attributed to the deficiency (above that inherent in the type-certified design)
3. urgency for required mitigations, inspections and/or corrective action

Superseded

4. corresponding risk exposure period of (and any complexity within) required terminating action to resolve the deficiency.

7.4.3.8 It is important to understand that DASA (as the independent regulator) is not, and should never be, on the critical path to manage the day-to-day safety of aircraft. Under the DASRs (and the WHS Act 2011), regulated entities have obligations to ensure safety is not compromised and to alert DASA as the situations warrants. Therefore, regulated entities should not wait for DASA to provide a position before taking any appropriate action in response to an identified unsafe condition.

Criteria for issue of an AD

7.4.3.9 During the conduct of DASA's assurance of reported occurrences, and regardless of whether the actions of the Approval Holder are deemed to be credible and defensible, DASA will consider (on a case-by-case basis) the issue of an AD[56] when:

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft.

2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.

7.4.3.10 In these instances, the 'safety benchmark' for the type or individual aircraft has (or potentially has) been compromised, and the continued validity of an aircraft's MCoA (and/or MTC) may be brought into question (via the presence of an unsafe condition). Therefore, DASA-approved inspection and/or remediation is necessary to restore an acceptable level of safety, via the issue of an AD.

7.4.3.11 Given an AD may be applicable to either all aircraft of a certified Defence type, or only certain individual aircraft of that type, ADs are by definition either type- or tail-related, issued to address identified in-service deficiencies pertaining to continued or continuing airworthiness (and potentially a hybrid thereof).

Purpose of an AD

7.4.3.12 The fundamental purpose of an AD is to:

1. approve corrective action and/or required inspections (proposed by the relevant Approval Holder under the DASRs)

2. communicate the presence of an unsafe condition affecting a Defence type and/or individual aircraft (that endangers flight safety) to the MAO/CAMO

3. mandate required action by the MAO/CAMO[57].

7.4.3.13 Regulated community compliance with DASA-issued ADs (to restore an acceptable level of safety) is mandatory within the DASP[58], which invokes the implementation of required action from a continuing airworthiness perspective under DASR Parts M and 145 (including military aircraft airworthiness review activities under DASR M Subpart I)[59].

Defence aviation context and considerations

Superseded

7.4.3.14 Since (EMAR-based) DASRs have a civil lineage – albeit adapted for the military context – fundamental aspects underpinning the intended application of DASR 21.A.3A and .3B are derived from ICAO-based concepts and civil regulations. That said, whilst DASA's assurance functions for reported unsafe conditions and the corresponding use of ADs within the DASP are *prima facie* the same, the combination of a number of inter-related features of the Defence aviation context requires additional policy considerations. In particular, how to pragmatically deal with the reality of:

1. sovereign government MTC Holder arrangements, that typically only coordinate the execution of holder obligations[60] and almost entirely leverage and recognise a much-broader (initial/) continued and continuing airworthiness management framework in place for a foreign type the same as, or similar to, the Defence type.
2. the general lack of centrality of the OEMs (as the original 'Approval Holders' for design and production that are not directly regulated under DASRs).
3. the nature of DASA as a relatively-small 'validating' Authority when issuing sovereign MTCs for Defence-registered aircraft (and most major changes to type-certificate (TC) thereafter).

7.4.3.15 Therefore, there is a strong reliance on the sustainment support arrangements established by CASG SPOs for the ongoing execution of sovereign MTC Holder functions required by DASR 21.A.3A and .3B [61], either with the actual OEM(s) and/or by leveraging the framework and actions of a foreign Civil/Military Aviation Authority (C/MAA), to support the identification and management of unsafe conditions applicable to Defence aircraft.

Sovereign MTC Holder support arrangements

7.4.3.16 The various in-service sustainment support arrangements implemented by CASG SPOs to support respective MTC Holder obligations, have differing degrees of OEM and/or foreign C/MAA involvement. Therefore, the extent to which sovereign MTC Holders leverage the initial, continued and continuing airworthiness management framework of a DASA-recognised foreign C/MAA, in direct support to the management of Defence types, will strongly influence the extent of sovereign decision-making required by MTC Holders (in the determination of required sovereign action to address an unsafe condition). In particular, those support arrangements that include a foreign C/MAA that acted as the primary certifying authority for an aircraft type similar to, or the same as, that operated by Defence.

7.4.3.17 Moreover, given the much-larger global fleets being oversighted and assured by respective foreign C/MAAs, the reality is that the vast majority of FMD/occurrences, assessments of any associated unsafe conditions, and the corresponding mandatory actions (to restore the safety benchmark) will be determined overseas (generally without sovereign MTC Holder and DASA involvement). However, FMD/occurrences for Defence aircraft do still arise, which may not be addressed by foreign type management arrangements. In particular, any design or part production deficiency that may be attributable to a military design or production organisation (MDO/MPO) approved by DASA under the DASP[62]. In these instances, the full intent of DASR 21.A.3A and .3B is required by respective Approval Holders and DASA.

7.4.3.18 Therefore, the degree of 'type management sovereignty' for Defence-registered aircraft – and therefore the extent to which sovereign decisions are required – will commensurately govern DASA's assurance of unsafe conditions affecting Defence-registered types (and the oversight of corresponding actions). That is, when more airworthiness-related 'type management' activity and

Superseded

decision-making is conducted in Australia, the greater DASA's involvement will be in the application of DASR 21.A.3A and .3B.

Sovereign Approval Holders propose required action to support the issue of an AD

7.4.3.19 When DASA decides that an AD needs to be issued within the DASP[63], the MTC Holder organisation (and/or other relevant Approval Holders under DASRs) should propose[64] appropriate corrective action and/or required inspections to DASA. Given sovereign MTC Holder organisations are primarily a coordinating (and not a design) organisation, OEM input should be considered mandatory, as well as C/MAA oversight and involvement (as appropriate)[65]. This therefore connects the original 'applicant' and the 'holder' of the design, as well as the primary certifying authority (that established the safety benchmark with the original 'OEM applicant' within their airworthiness management framework), which therefore executes the actual intent of DASR 21.A.3A and .3B.

7.4.3.20 Upon receipt, DASA's independent safety assurance function is to approve the holder's proposal, including required inspection(s) and/or rectification interval(s), and the associated risk exposure. DASA will engage with the Approval Holder and amend the proposal, if and as required. When satisfied that the AD's content (as proposed by the holder) provides appropriate terminating action to eliminate the unsafe condition (and to restore the 'safety benchmark'), and the associated risk during the exposure period will be otherwise minimised SFARP, DASA will issue an AD accordingly[66]. In doing so, DASA is explicitly approving the corrective action to address the unsafe condition and the corresponding exposure period.

Foreign ADs (or equivalent)

7.4.3.21 When sovereign MTC Holders receive relevant foreign ADs (or equivalent[67]) for assessment, and report this to DASA[68], the DASP is the beneficiary of relevant C/MAA assurance of the same/similar type to that operated by Defence. This broadly meets the intent of DASR 21.A.3A and .3B; for the 'problem' and the 'solution' is provided, that usually leverages the inputs of the actual OEM and recognises what the relevant C/MAA deemed mandatory. Therefore, a sovereign MTC Holder will need to consider the following:

1. the applicability of a foreign AD (or equivalent) to a Defence-registered type.
2. the availability and suitability of controls and corrective actions provided by a relevant foreign C/MAA that can be 'adopted' (including whether full (or partial) compliance and implementation is intended).
3. the extent to which a Defence type's Configuration, Role and Environment (CRE) considerations require necessary/appropriate variations to adapt the content of a foreign AD (or equivalent); and in particular, necessary/appropriate variations to risk controls, terminating action(s) and/or implementation timeframes/risk exposure periods.
4. the need to amplify other foreign-source safety advice for required actions and timeframes to rectify an unsafe condition[69].

7.4.3.22 Given the 'sovereignty' of DASA-issued MTCs (/MSTCs) and MCoAs for Defence-registered aircraft, the assessment of unsafe (or potentially unsafe) conditions identified for foreign aircraft that may affect Defence aircraft is fundamental to support the ongoing validity of these DASA-issued authorisations. However, it is important to note that these foreign ADs (or equivalent) are not automatically applicable and mandatory under the DASP, and despite the AD definition cited within

Superseded

DASR 21.A.3B(a), there is no regulatory mechanism within DASR 21 to 'adopt' foreign ADs (or equivalent)[70]. Therefore, whilst the regulated community may indeed decide to implement the required actions of a foreign AD (or equivalent) as a 'credible and defensible' means to address an unsafe condition for a Defence-registered aircraft, DASA nonetheless requires that applicable critical foreign safety-related information (and in particular, that issued by the primary certifying authority) is formally 'brought into the DASP' and actioned accordingly. The only way for this to occuris for DASA to issue an AD in the DASP[71], to mandate the same/similar action for Defence-registered aircraft.

Foreign ADs (or equivalent) issued by the primary certifying authority are mandatory when applicable to Defence-registered aircraft

7.4.3.23 DASA functions largely and almost exclusively as a 'validating authority', when issuing a sovereign MTC to establish the initial airworthiness of Defence types (and approving most major changes to TC thereafter), based upon recognition and leverage of the previous type-certification efforts of foreign C/MAAs. Similarly, the DASP should also recognise and leverage the type knowledge and understanding of the relevant C/MAA's management of continued and continuing airworthiness, for aircraft the same as/similar to Defence types.

7.4.3.24 Therefore, DASA's default policy position is that compliance with the technical content of foreign ADs (or equivalent) – issued by the primary certifying authority that DASA leveraged to underpin the award of a DASA MTC – is mandatory (when applicable to Defence-registered aircraft). If the primary certifying authority deemed a condition unsafe, then in near-all instances, their required mandatory action to address compromised airworthiness should be equally-applicable to Defence aircraft (notwithstanding any unique CRE considerations in certain situations).

7.4.3.25 The act of 'validating' the applicability and corresponding mandatory action within a foreign AD (or equivalent) for a Defence type is pragmatic and efficient. DASA issue of an AD when 'validating' a foreign AD (or equivalent) will in most instances be as simple as placing a DASA AD cover page on the foreign artefact(s) (if no changes are required), which may also include any minor adaption (that does not change the intent[72]), and promulgating this to the relevant MAO/CAMO for implementation.

7.4.3.26 Whilst this policy consideration would likely cater for many foreign ADs (or equivalent), DASA acknowledges there may be exceptions and complexities in certain situations, that require professional judgement. In particular, there may be compelling reasons why applicable foreign ADs are not intended for compliance (or only partial compliance), or there are substantial required and/or proposed variations on account of Defence CRE considerations (or otherwise) that will alter the intent and/or attendant risk. This will therefore require a much-greater degree of engagement between the relevant Approval Holder and DASA, to agree the content of the DASA AD (if issued).

Traceability with required mandatory action issued by the primary certifying authority

7.4.3.27 DASA's expectation is that sovereign MTC Holder arrangements implemented for each Defence type will monitor safety-related information from respective OEMs and C/MAAs (including other operators), to support required obligations under DASR 21.A.3A and .3B) (and DASR 21.A.44). In particular, this should include the documented methods and means to record the traceability of all actions mandated by the primary certifying authority[73], and the alignment with that implemented within the DASP.

7.4.3.28 For civil-derivative military aircraft, certified by a foreign MAA yet underpinned substantially by a foreign CAA's certification of the 'green aircraft', the applicability of foreign civil ADs would ideally be assessed and actioned by the relevant foreign MAA (that oversights the overseas

Superseded

fleet the same as/similar to a Defence type), but this may not always occur as expected. Therefore, due consideration should also be given to record the traceability (or otherwise) to Emergency or Alert Service Bulletins (issued by civil OEMs) and ADs (issued by the relevant CAA) that may not be mandated by the relevant MAA.

Platform DoSAs may issue ADs (for validated foreign ADs (or equivalent))

7.4.3.29 When a DASA AD needs to be issued within the DASP, and in instances where the relevant Platform Delegate of the Safety Authority (DoSA) is not developing the technical content therein – but rather only validating that a foreign AD (or equivalent) is applicable to, and should be mandatory for, Defence-registered aircraft – the Platform DoSA is the most-appropriate release authority (for, and on behalf of, DASA[74]). This is pragmatic and efficient, and is the most-responsive and agile arrangement (particularly for exigent circumstances), which is also aligned with a Platform DoSA's safety-related role and functions.

7.4.3.30 Moreover, this also fully aligns with the distributed model established for each Defence type to monitor, review and assess foreign safety-related data that may impact Defence aircraft, and should be invoked to the greatest extent possible[75]. The only caveat is that if the risk exposure is DHRM MEDIUM (or higher) until terminating action is accomplished, this should default to DASA (yet supported and staffed by the Platform DoSA).

AD issue in the absence of a foreign AD (or equivalent)

7.4.3.31 For the Defence aviation context, and in addition to the aforementioned, DASA will also consider (on a case-by-case basis) the issue of an AD in the DASP, in advance of a primary certifying authority's release of a foreign AD (or equivalent). DASA's expectation is that whenever continued operations are intended with protracted exposure to a (post-mitigation) residual risk to airworthiness – on account of an unsafe condition associated with catastrophic and hazardous consequences that cannot be eliminated or fully-controlled immediately by design – an AD in the DASP should be issued. This will usually manifest in situations where foreign MAAs have conducted a risk assessment and recommended initial treatment/controls for continued operations (due to the presence of an unsafe condition), yet the design solution and the attendant foreign AD (or equivalent) does not (and will not) exist for a significant period of time (to detail required terminating action and compliance timeframe to restore an acceptable level of safety).

7.4.3.32 This therefore sets a default position for compromised airworthiness associated with long-standing exposure to an elevated level of residual risk (whilst design solutions are being devised). In this instance, a DASA-issued AD therefore provides a means to formally communicate instances of elevated levels of risk within the DASP (bounded by a date for terminating action and compliance to be implemented), which will also provide improved Command awareness, visibility and traceability of required actions.

DASA-issued ADs associated with elevated risk should be underpinned by 7-Step Risk Management

7.4.3.33 By definition, continued (post-mitigation) operations with an unsafe condition that cannot be eliminated immediately constitutes an elevated level of risk to airworthiness during the exposure period, until terminating action detailed within an AD restores an acceptable level of safety.

7.4.3.34 Therefore, consistent with a MAO's DASR and WHS obligations, the elevated level of risk attributed to a deficiency (above that inherent in the certified design) and the corresponding residual risk exposure period should be underpinned by a MAO's Risk-Decision Brief (RDB). In particular, for instances that:

Superseded

1. deviate significantly from compliance requirements with 'validated and adopted' foreign ADs (or equivalent).

2. where there is markedly-elevated risk being retained, and the corresponding design solution required to address the deficiency will not be available for an extended period of time[76].

7.4.3.35 This policy position will primarily affect military aircraft (and likely not affect Defence-registered aircraft that are ostensibly civil). The need for an RDB for lower-level risks should be considered on a case-by-case basis (aligned with a MAO's Safety Management System (SMS)), and may not be required at all – particularly for instances where DASA leverages and 'adopts' foreign CAA ADs with no variations to risk controls and exposure periods.

7.4.3.36 MAO RDBs (that underpin DASA-issued ADs) will need to consider and disposition all available and suitable technical and operational risk controls, to support appropriate operating conditions and/or limitations. This therefore ensures and requires that MAO Hazard Tracking Authorities (HTAs) and Risk Management Authorities (RMAs) are suitably-engaged for airworthiness issues, and the corresponding DASA AD is a mechanism to communicate and document DASA's independent safety assurance for an agreed risk management strategy.

7.4.4 Other Design Approval Holders

7.4.4.1 This section addresses other design approval holders under the DASR framework. This primarily covers any Australian Military Technical Standard Order Authorisations (AUSMTSO) under DASR 21 Subpart O. AUSMTSO Authorisations are not expected to be widely used in the Defence regulatory framework and will only be issued by exception. The Authorisation is common in the civil domain under the term Technical Standard Order (TSO) and TSO Authorisations and encourages competition across the industry through novel design which does readily translate across into the military domain.

7.4.4.2 An AUSMTSO under DASR is considered equal in concept to the civil use where a TSO is defined as a minimum performance standard for specified materials, parts, and appliances used on civil aircraft. An AUSMTSO Authorisation enables the holder to manufacture a material, part, or appliances to a TSO standard. Receiving an AUSMTSO Authorisation is both a design and production approval, but importantly does not extend to installing and using the article in the aircraft.

7.4.4.3 In the civil domain, a TSO Authorisation enables the manufacture of articles that may be installed on an aircraft only after showing that the article meets the specific airworthiness requirements (certification basis) of a particular aircraft model. Receiving a TSO Authorisation verifies that an article meets a minimum performance requirement independent of the article's intended installation on an aircraft. Under the DASR, using the AUSMTSO Authorisation will be more nuanced and will not be issued on a competitive basis.

7.4.4.4 Common articles on modern day aircraft including Military aircraft that have their genesis through the civil TSO provisions include Embedded GPS and INS Units (EGIs), Auxiliary Power Units, Tires, seat belts, crew oxygen masks, seat assemblies, brake assemblies, antennae, various instrumentation, cargo containers along with many more. Under the DASR framework, the use of AUSMTSO has been very limited.

Superseded

7.4.4.5 Under DASR 21, Subpart O, the holder of an AUSMTSO has obligations to ensure that the article continually conforms to its design and is manufactured accordingly per regulations detailed under production (Subpart G). The holder is also subject to a number of other initial airworthiness regulations such as occurrence reporting and part marking with respect to their article. Although the Defence MTC construct results in a nuanced use, the AUSMTSO holder is required to engage with the aircraft Type certificate holder to integrate their article into the aircraft type or where design changes impact the integration.

7.5.1 Introduction

7.5.1.1 A Military Permit to Fly (MPTF) is a 'product authorisation' issued by DASA to aircraft that do not meet, or have not been shown to meet, the requirements of the Type-Certification Basis (TCB) and/or Military Air Operator Certificate (MAOC), but are nonetheless capable of safe flight under defined conditions and for specified purposes. An MPTF is always associated with a set of flight conditions that may be approved prior to, or in conjunction with, the MPTF application.

7.5.1.2 An MPTF is a risk-based authorisation, within the suite of Defence aviation flexibility provisions provided under DASR GR.80, to facilitate military flexibility in support of a capability imperative, which is valid for a defined period of time, underpinned by a seven-step risk assessment with both technical and operational input.

7.5.1.3 Further to the overview of the Flight Conditions and MPTF authorisations provided at Chapter 5.3 Annex N, this chapter details DASR implementation of applications for, and approval of, Flight Conditions and MPTF (and the associated risk management aspects).

Audience

7.5.1.4 This chapter applies to DASR-regulated entities exercising roles or responsibilities when applying for an MPTF under DASR 21 Subpart P Military Permit To Fly. Whilst this will primarily be Military Air Operators (MAOs) – including Continuing Airworthiness Management Organisations (CAMOs) and service providers – it also extends to any organisation engaged to assist with the preparation of the application, such as: Military Type-Certificate (MTC) holders; design organisations (DASR Military Design Organisations (MDOs) and equivalents) and organisations involved in managing the configuration of Defence aircraft (CASG Systems Program Offices (SPOs) and Through-Life Support (TLS) contractors).

7.5.1.5 While cognisant of the above, the application for (and holding of) an MPTF within the DASR environment will almost exclusively be a MAO requirement for the subject aircraft defined within the MAOC Operations Specification (OpSpec)[77]. The MAO should therefore establish in-service procedures to implement attendant MPTF regulation and Acceptable Means of Compliance (AMC) that reflects the central role of the MAO Accountable Manager (AM) and authorised staff within the MPTF process.

Purpose

7.5.1.6 This chapter provides guidance in relation to Initial Airworthiness requirements under DASR 21 Subpart P, for developing MPTF applications, inclusive of: collating substantiation documentation; gaining operational endorsement; signing the declaration of safety; engaging with the Authority

Superseded

(inclusive of the Delegate of the Safety Authority (DoSA)) for approval and issue of the MPTF; and meeting MPTF holder obligations. Moreover, this chapter explains how applications for approval of flight conditions and an MPTF should follow the seven-step risk management process detailed in DASA AC 003-2018—Risk Management in the Defence Aviation Safety Program, and describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the Work Health and Safety Act 2011 (WHS Act).

Background

7.5.1.7 Within civilian aviation regulations, a permit to fly is predominately used to support development, certification, production and delivery of new aircraft and major modifications, and to support in-service operation outside the bounds of the Certificate of Airworthiness (CoA); such as ferry flights to a suitable maintenance venue for defect rectification or the conduct of an overdue scheduled servicing.

7.5.1.8 The use of MPTFs within the DASR context is subtly different. Design, certification and production of a new aircraft solely within a DASR MDO/MPO has not yet occurred, and flight test for development of major modifications will likely occur for Defence-registered aircraft operated by a MAO (rather than a DASR MDO/MPO at this stage). Furthermore, as recognised and afforded by DASR GR.80 Flexibility Provisions, Defence aviation requires flexibility to support capability imperatives for certain operational circumstances that would not be allowed within the civilian aviation domain.

7.5.1.9 Under normal circumstances, all Defence-registered aircraft should only be operated with a valid Military CoA (MCoA) issued by DASA. An MCoA is issued when the aircraft was shown, at the time of issue, to conform to its MTC awarded post-certification. Whilst in-service, the validity of the aircraft's MCoA is maintained by meeting the continuing airworthiness requirements of DASR M[78]. A valid MCoA represents a baseline level of airworthiness, aligning to both civil and military global conventions. Importantly, in the Defence context, an MPTF authorisation supplements, rather than replaces, the MCoA.

7.5.1.10 However, as stated, military aviation requires flexibility for Commanders to operate aircraft in certain circumstances without having met all the prescribed initial, continued or continuing airworthiness or aviation safety requirements, but are nonetheless capable of safe flight under defined conditions. In these circumstances, and without the necessary flexibility provisions in DASRs, the MAO would be unable to operate under the regulations. To accommodate Defence aviation flexibility, DASRs include provisions for issue of either of the following, to facilitate operation when the prescribed airworthiness or aviation safety requirements are not met:

1. MPTF under DASR 21 Subpart P Military Permit To Fly, which is augmented with AUS-unique AMC and Guidance Material (GM), which stipulate specific application requirements and include additional expectations for the holders of an MPTF, or
2. Command Clearance (CC) under DASR Specific Purpose Approval – SPA.10 *Command Clearance* [79].

7.5.2 Difference between MPTF and CC

7.5.2.1 The DASR SPA.10 CC provides for a similar outcome to that of an MPTF, in so far as the CC may also be used to authorise flight(s) where the MCoA's Instructions for Continuing Airworthiness (ICA) conditions are unable to be met. However, the key difference between the MPTF and CC is that the MPTF is an initial airworthiness authorisation subject to DASA approval and issue, whereas a CC is

Superseded

an operational authorisation via the command chain. In ideal circumstances, conditions that require an MPTF would be managed via an MPTF; however, in the event of compelling time-critical capability imperatives or emergencies, and where there is insufficient time to process an MPTF application, a DASR SPA.10 CC may be exercised.

7.5.2.2 Regardless of whether MPTF or CC provisions are used, the operating organisation remains responsible for meeting WHS obligations to eliminate or otherwise minimise risk to aviation safety, so far as reasonably practicable (SFARP). Therefore, both the MPTF application process and issue of a CC require the MAO to exercise the seven-step risk management process detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. However, an MPTF provides the MAO with independent assurance over the discharge of their obligations and should be sought whenever reasonably practicable. Should the requirement for operation of an aircraft under DASR SPA.10 be for an extended period, an MPTF or other appropriate authorisation must replace the CC.

7.5.3 Defence use of MPTFs

7.5.3.1 Whilst DASR 21.A.701(a) provides a non-exhaustive list of examples illustrating situations when an MPTF should be used, the majority of those examples are EASA/EMAR-based, and focused more on development of aircraft design, production, delivery and initial training within an OEM organisation (operating under privilege), as opposed to in-service scenarios that are typical for Defence aviation. For the Defence context, and as outlined within GM to DASR GR.80(c), aircraft operation in the following circumstances potentially entails flight at an elevated level of risk that may require an MPTF:

1. **Prior to initial issue of an MTC and MCoA.** DASR 21 precludes the issue of an MCoA if an MTC has not yet been issued. This will typically be due to the requirement to operate new aircraft prior to completion of the type-certification programme.

2. **Aircraft operation while continuing airworthiness requirements are not satisfied.** The aircraft has been issued an MCoA and is required for operational tasking; however, any of the following continuing airworthiness requirements have not been met:

   i. a defect that cannot be deferred as it has been assessed to endanger flight safety

   ii. scheduled maintenance in the Aircraft Maintenance Programme (AMP) has not been carried out

   iii. an Airworthiness Limitation (AwL) or Certification Maintenance Requirement (CMR) has been reached

   iv. an Airworthiness Directive (AD) has not been incorporated.

3. **Aircraft not conforming to an approved design configuration for the purpose of flight test.** Installation of a yet-to-be-approved modification for flight test, in order to gather compliance demonstration evidence to support approval of a change to type-certificate (or subsequent flights prior to the design change approval being issued).

4. **Aircraft operation outside approved limitations.** The aircraft has been issued an MCoA but is intended to be flown beyond the approved operating limitations in the Aircraft Flight Manual (AFM), or outside the approved role and/or environment detailed within the MAOC OpSpec. These circumstances can arise from either

Superseded

operational tasking or for the purpose of flight test (to support role expansion activities).

7.5.4 Overview of Organisational Responsibilities

7.5.4.1 The following organisations have specific responsibilities with respect to the application for, and issue of, MPTFs:

1. MAOs. MAOs are responsible for applying to DASA for the approval of flight conditions and the issue of an MPTF. They must fulfil the responsibilities of the applicant, including the conduct of a risk assessment that fully integrates all technical and operational considerations. MAOs should engage relevant external organisations in the course of preparing the application in order to effectively conduct an integrated risk assessment. These organisations may include the product's MTC holder, design organisations, CAMOs (and service providers), flight test organisations, and/or relevant maintenance organisations. All MPTFs are issued to MAOs who are then responsible for discharging the obligations of the holder of a MPTF.

2. DASA. Upon receipt of an application(s), DASA will provide independent assurance that there is evidence that the MAO met their obligations and has eliminated or otherwise minimised all risks SFARP. DASA assurance will focus on credible and defensible risk management, which provides advice to Commanders if the capability imperative has been sufficiently described and would support a decision-to-proceed with the identified Elevated Level of Risk (ELOR); however the decision-to-proceed always remains with the applicant.

7.5.5 Overview of MPTF Process and DASR Forms

7.5.5.1 The application process to obtain an MPTF is relatively straightforward, but does require clear identification of the participants and an understanding of the associated responsibilities. Whilst two separate applications are required, DASRs do not prohibit both being submitted to DASA concurrently. Relevant DASR Forms are as follows:

1. DASR Form 18b. Application for, and approval of, flight conditions that enable the aircraft to operate safely. This form is raised and submitted by an applicant to DASA. DASA approves the application and returns the approved form to the applicant.

2. DASR Form 21. Application for issue of an MPTF. Raised by the applicant and submitted to DASA. This may reference pre-existing and approved flight conditions within DASR Form 18b.

3. DASR Form 20a. Issue of an MPTF in response to a DASR Form 21 application. Raised by DASA and issued to the applicant; that is, the organisation responsible for conducting the associated flight(s) and ensuring the flight conditions are adhered to.

7.5.5.2 Further to GM to DASR 21 Subpart P, Annex A provides a 'swim-lane' flowchart illustrating the application process within organisational responsibilities. Reiterating, the approval of flight conditions is separate from the issue of an MPTF to give the applicant flexibility. Reasons include:

1. One set of flight conditions may underpin a number of MPTFs.

Superseded

2. The approval of flight conditions and the issue of an MPTF may be separated in time.

3. The issue of an MPTF by a local DoSA, in instances where DASA has previously approved flight conditions that are beyond the DoSA's delegation, may improve flexibility and timeliness.

4. The approval of flight conditions and issue of an MPTF represent different steps in the seven-step risk management process, and therefore address different WHS Act requirements.

7.5.6 Summary of the Seven-Step Risk Management Process

7.5.6.1 GM to DASR SMS.A.25(b)(2)(2.2) outlines Defence's seven-step risk management process (depicted in Figure 5), with further aviation-specific guidance detailed in DASA AC 003/2018—Risk Management in the Defence Aviation Safety Program. AC 003/2018 describes the key elements of safety risk management that must be implemented by organisations to ensure compliance with the WHS Act.

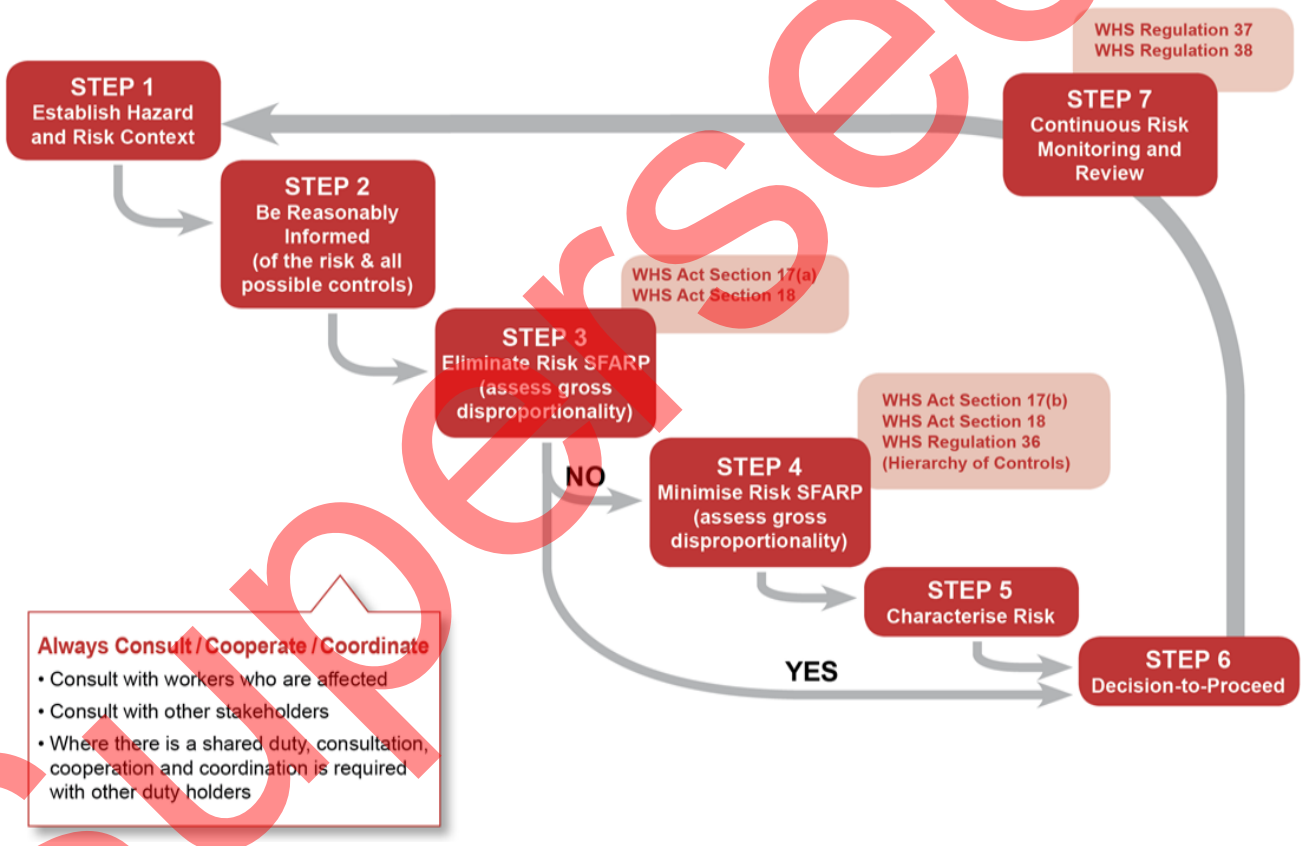


Figure 5: Safety Risk Management Process

7.5.6.1.2 DASR application forms for the approval of flight conditions and the issue of an MPTF collectively cover all of the required steps in the safety risk management process. DASR Forms 18b and 21 should summarise key information arising from the seven-step risk management process. Additional detail may be included in separate documents.

Superseded

7.5.7 Application for Approval of Flight Conditions

7.5.7.1 An approved set of flight conditions underpins every MPTF, which are the risk controls required to eliminate or otherwise minimise the risk SFARP. In applying for the approval of flight conditions, the applicant should execute and document Steps 1–5 of the seven-step risk management process. A single set of approved flight conditions may be applied to several MPTFs.

7.5.7.2 The specific application of these steps in applying for the approval of flight conditions are as follows:

1. **Step 1 – Establishing the risk context.** The applicant must define the task objective(s) including a clear strategic, operational or tactical imperative for the task and why it is necessary to fly with an ELOR. In defining task objective(s), the applicant should consider whether the task is new or existing, the discretionary/non-discretionary nature of the task and its urgency. The applicant should also identify and engage relevant stakeholders to ensure the risk assessment fully integrates all technical and operational factors. The risk context establishes the depth of risk assessment required and informs all reasonably practicable judgements. Establishing the context, also includes the duration of the activity. Retention of ELOR must be for the minimum possible duration to remain defensible within the WHS obligations and DASRs. As such, long-term MPTFs are unlikely to be defensible[80].

2. **Step 2.a – Being reasonably informed of the risks.** The applicant must proactively take steps to gain reasonable knowledge of the exact nature of all hazards and risks (both technical and operational). This may include use of existing OIP, the AFM, ICA or the provision of specialist advice from appropriate support organisations. This could include design organisations, technology or operational specialists, flight test specialists or the aircraft's OEM. There is no fixed list of who must be consulted for each application; instead, the applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context.

3. **Step 2.b – Being reasonably informed of all possible controls.** The applicant must take steps to gain reasonable knowledge of all possible controls (both technical and operational) in order to identify which ones are available and potentially suitable. Per Step 2.a, the applicant must seek relevant specialist advice where appropriate. Again, there is no fixed list of who must be consulted for each application. The applicant must always take those steps (including consultation with other organisations) that are reasonably practicable in their context. The applicant must not discard any controls at this stage, as all identified controls should be used as inputs to Steps 3 and 4 in the risk management process.

4. **Steps 3 and 4 – Eliminate or otherwise minimise risk SFARP.** There is an explicit requirement to eliminate risk SFARP in the first instance and only if not reasonably practicable to do so (informed by the risk context established at Step 1), implement risk controls to minimise the risk SFARP. The applicant should systematically work through every control identified in Step 2 to determine if they are reasonably practicable to implement. The applicant must also address any additional hazards introduced by the risk controls. The integrated set of technical and operational risk controls that are reasonably practicable to implement, form the proposed flight conditions that will underpin the MPTF.

Superseded

5. **Step 5 – Characterising and communicating residual risk.** The applicant must characterise the residual risk using their safety risk management system (Note: DASA anticipates the residual risk will be characterised using the Defence Harmonised Risk Matrix (DHRM) in the Defence Aviation Safety Manual (DASM), but does not mandate its use). This step must include a declaration from the applicant that the flight conditions are a set of risk controls, integrated from a technical and operational perspective, which eliminates or otherwise minimises the risk SFARP.

7.5.7.3 Specific detail of the information and supporting documentation required to complete DASR Form 18b- *Application for Approval of Flight Conditions* is provided in the instruction sheets covering the form. See also DASR 21.A.708 and 21.A.709.

7.5.7.4 Flight Test. When an MPTF relates to flight test activity, DASRs require that flight conditions and operational endorsement must be provided by a competent MAO staff member, as determined by a DoSA-Flight Test (DoSA-FT)[81]. MAOs may apply to a DoSA-FT for a determination of competence for nominated MAO staff.

7.5.8 Approval of Flight Conditions

7.5.8.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can approve flight conditions. DASA will approve flight conditions if it has sufficient confidence that:

1. The applicant has given due consideration to the risk context, including the objectives and significance of the flying activity.
2. Elimination of the risk by restoring the aircraft to an airworthy condition IAW existing approved data, or deferring a defect, is not reasonably practicable.
3. Proposed flight conditions represent a set of risk controls that provide a credible and defensible level of safety for the flights/duration requested.
4. The applicant has appropriately characterised and communicated the residual risk.
5. The applicant has made an explicit declaration that the flight conditions, when implemented effectively, will eliminate or otherwise minimise the risk SFARP. The risk context of the application must support the depth of risk assessment undertaken and reasonably practicable judgements made by the applicant.

7.5.8.2 In assessing the application, DASA reviews the information supplied by the applicant and independently assures that it demonstrates the risk has been eliminated or minimised SFARP, and has been characterised accurately. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

Superseded

7.5.9 Application for an MPTF

7.5.9.1 Applications to DASA for the issue of an MPTF are made for specific aircraft and tasking using DASR Form 21 - *Application for a Military Permit to Fly*. All applications must reference an approved set of flight conditions, or an accompanying application for their approval. DASR Form 21 supports and records the applicant's 'decision-to-proceed' at Step 6 in the seven-step risk management process.

7.5.9.2 Note, in submitting an application for an MPTF and making the decision-to-proceed, the applicant also revisits Step 1 – Establishing the Risk Context, for that application. The test of SFARP is contextual and temporal; so this return to the risk context for the MPTF application is necessary to ensure that the applicant has made the decision-to-proceed based on the characterisation of risk in the flight conditions and in the context defined by the MPTF application, at the time of that application.

7.5.9.3 For example, the risk context of the flight conditions may be broad and enduring, covering activities such as 'deployed or directed operations'. However, the context of an application for an MPTF referencing those flight conditions must justify proceeding with the risk characterised in those flight conditions in its own right. As a result, an MPTF for a flight which itself is discretionary with little or no military capability imperative, relying upon flight conditions with a broad context such as 'deployed operations', may not be credible or defensible with the risk characterised in the referenced flight conditions, despite occurring while 'deployed'.

7.5.9.4 The key information required to support this step in the risk management process is the applicant's justification that:

1. The purpose of flight for this application is within the risk context of the referenced flight conditions and the specific task in this application warrants proceeding with the residual risk at the time of application.
2. The specific aircraft to be tasked meet(s) the configuration required by the approved flight conditions.
3. The conditions and restrictions (risk controls) in the approved flight conditions will be implemented on the subject aircraft for the subject flight(s).

7.5.9.5 The applicant must identify a suitable delegate within their organisation who has capacity to make the decision-to-proceed with the flight(s) (i.e. retain the risk). In making the decision-to-proceed, the applicant must act within their safety risk management system. Specific details of the information and supporting documentation required to complete DASR Form 21 - *Application for a Military Permit to Fly* is provided in the instruction sheets covering the form. See also DASR 21.A.707.

7.5.9.6 Flight Test. Within specialist Service Flight Test Organisations (FTOs), procedures exist to streamline MPTF applications and approvals for a range of flight test activities, such as:

1. Flight test activities on any Defence aircraft type to be conducted by, or under the direct supervision of, a Defence Aviation Authority (DAA)-approved FTO (all CAT 1 and 2 flight test and some CAT 4 tests)
2. Where Flight Test Instrumentation (FTI) or modifications are to be used, or
3. Where flight test operational substantiation and/or endorsement is required.

Superseded

7.5.9.7 MAOs considering flight test activities are encouraged to engage their respective Service FTO or a DoSA-FT, who will advise on the process to use. See also DASR FT–Flight Test.

7.5.10 Issue of a MPTF

7.5.10.1 Only DASA (including DoSAs, within the scope of their delegation) or an organisation with the appropriate privilege can issue an MPTF. DASA will issue an MPTF (via DASR Form 20a) if it has sufficient confidence that:

1. The decision-to-proceed has been made by an appropriate person within the applicant's organisation, given the characterisation of the residual risk (Note: DASA does not prescribe what this level is, nor what organisational authorisations they must hold).

2. The assignment of the responsibilities to implement and monitor risk controls (i.e. adherence to the approved flight conditions) is clear.

3. If applicable, there has been consideration that the flight conditions are compatible with any other MPTFs currently in effect for that aircraft (Note: The applicant is responsible for managing the implementation of multiple or concurrent MPTFs).

4. The risk context of the MPTF application is within that of the referenced flight conditions and supports the decision-to-proceed with the risk characterised by those flight conditions.

7.5.10.2 In assessing the application for an MPTF, DASA reviews the information supplied by the applicant and independently assures that it supports flying with an aircraft that does not meet the prescribed airworthiness or aviation safety requirements and may be operating at an ELOR. This will include whether the period of risk retention (the context) is defensible. While DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander, DASA supports the Commander via the independent assessment that those decisions are credible and defensible.

7.5.10.3 Flight Test. When the MPTF relates to a flight test activity categorised IAW DASR.FT.05, flight conditions must be endorsed by competent staff of a MAO (as per para 22), and for a CAT 1 or 2 activity, Authority approval of flight conditions and issuing of the MPTF must be conducted by a DoSA-FT.

7.5.11 Obligations of the holder of an MPTF

7.5.11.1 As the holder of an MPTF, the MAO is responsible for ensuring the flight conditions are implemented and remain effective for the duration of the MPTF. This satisfies Step 7 of the seven-step risk management process and includes ensuring the risk context supporting the approved flight conditions remains applicable for the duration of the MPTF. See also DASR 21.A.727 and DASR 21.A.708.

7.5.11.2 Configuration management. An MPTF may introduce specific aircraft configuration management requirements, especially if an MPTF covers a yet-to-be-approved modification for operational use or flight test activity. MPTF conditions may include information such as: incorporation and maintenance instructions for new modifications; periodic inspections for non-standard damage;

Superseded

or increased usage data recording requirements. The CAMO must be aware of MPTFs that are applicable to a given aircraft to ensure overlapping continuing airworthiness requirements are resolved or coordinated, to ensure no loss of configuration management and the appropriate aircraft technical log and maintenance documentation remains accurate.

7.5.11.3 Operation by another MAO. The holder of an MPTF is responsible for ensuring the DASR 21.A.708 flight conditions are met. However, in instances where aircraft may be transferred between MAOs, this situation requires the holder to establish suitable arrangements for the transfer of holder obligations for an aircraft (that is subject to one or more MPTFs) when operated by another MAO.

7.5.12 MPTF Examples within DASR Context

7.5.12.1 Annex B provides a non-exhaustive list of examples intended to illustrate the conduct of the MPTF process within the DASR environment. Where uncertainty exists, contact a DASA Desk Officer (DIA-TC or DAVENG), the platform DoSA, or a DoSA-FT (for MPTFs related to flight test). In addition, Annex C provides a comprehensive guide to good practice and common issues pertaining to applications for flight conditions and MPTFs.

Annexes

(a) Application for MPTF: Swim-lane flowchart

(b) MPTF Examples within DASR Context

(c) Successful Applications for Approval of Flight Conditions and MPTFs

Useful References

DASR Form 18b - Application for Approval of Flight Conditions

DASR Form 21 - Application for a Military Permit to Fly

DASR Form 20a - Military Permit to Fly

DASA AC 003-2018 - Risk Management in the Defence Aviation Safety Program

DASA AC 002-2022 - Management of Aviation Risks to People who are not Members of the ADF

DASP Manual Chapter 7 Annex D - Repair Design Approval Scenarios

DASP Manual Chapter 7 Annex E - Propulsion System-Related Risk Analysis

DASA Intranet Site Content relating to Flight Conditions and MPTFs (Available via Intranet Only)

DASR 21 - Aircraft Design, Production and Certification

DASR 21 Subpart P - Military Permit to Fly

Superseded

DASR FT - Flight Test

DASR M - Continuing Airworthiness Management

7.6.1 Military Design Organisations

Aim

7.6.1.1 This chapter details the approval and ongoing oversight of a Military Design Organisation (MDO). A MDO is approved under DASR Part21J and can only undertake design work related to the privileges granted under that approval and within the scope of that approval. Often the scope restricts what platforms a design can be applied to and can impose further limitations to aspects of their design work if required.

Introduction

7.6.1.2 Design organisation means an organisation responsible for the design of aircraft, aircraft engines, propellers, auxiliary power units, or related parts and appliances, and holding, or applying for, type-certificates, supplemental type-certificates, changes or repair design approvals. These design organisations that design aircraft, make changes to aircraft or design repairs of aircraft, and parts and appliances, need to fulfil the requirements as defined in DASR Part 21. Such organisations need to demonstrate that they have the right organisation, procedures, competencies and resources to effectively produce the design.

Obligations

7.6.1.3 DASA impose regulatory obligations on Design Organisations as part of the approval to ensure the airworthiness of aircraft and aviation products being designed within Defence. These obligations are intended to maintain high standards of design, engineering, and manufacturing processes throughout the defence aviation industry.

7.6.4 By placing obligations on design organisations, DASA aims to assure that the design, modification, and production of aircraft, components, and systems meet appropriate airworthiness standards.

Privileges

7.6.1.5 Under the DASR construct, the authority is the controlling signatory for all product released related to the type certificate. To reduce the burden on DASA, approved organisations are typically awarded privileges that allow work to be approved on behalf of the authority. For example, a design organisation may be privileged to approve minor changes to type design as well as minor and major repairs.

7.6.1.6 Granted privileges are documented on a Form 83. The Form 83 outlines the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

Superseded

7.6.1.7 An organisation attains a DASR 21 MDO Approval by submitting a Form 80 Application for Military Design Organisation Approval (MDOA) for DASA consideration, or a Form 82 Application for Significant Changes to Design Organisation Approval where a MDOA is already held but scope change is needed. Along with the application, the organisation must furnish a handbook (formerly an exposition) whereby all the processes utilised under the established Design Assurance System (DAS) are detailed. The Design Organisation Handbook Requirements are outlined in Appendix 1 of Chapter 5.3 of DASP Manual Volume 3.

DASA Design organisation assurance

7.6.1.8 Once a design organisation has gained an approval to conduct design activity, DASA will schedule oversight activities in order to assure that the MDO has maintained / is maintaining their approval to the standard as governed by the DASR Pt21 regulations. For organisations maintaining a Part21 approval, DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, and Resources as detailed in the approved Design organisation handbook, as well as consideration of the quality of design products.

7.6.1.9 The DAS is effectively the Quality Management System (QMS) specific to the output of designs against the scope issued under the Form 83. The DAS can utilise elements of the organisation QMS to satisfy requirements of the DAS. The DAS and the QMS are not the same and oversight of the DAS will be conducted specifically to design products produced.

Further information

1. DASP Manual Vol 3 Chapter 5.3 Annex E
2. DASR 21 Subpart J – Military Design Organisation Approval

7.6.2 Military Production Organisations

Aim

7.6.2.1 This chapter details the approval and ongoing oversight of a Military Production Organisation (MPO). A MPO is approved under DASR Part21 G and can only undertake production work related to the privileges granted under that approval. This includes what release documentation is acceptable under DASRs.

Introduction

7.6.2.2 Production for Defence registered aircraft is assured by DASA through the issue of Certificates of Airworthiness. For Certificates of Airworthiness to remain valid through the life of the aircraft, only components accompanied by acceptable release documentation may be installed on the aircraft. Acceptable release documentation can take various forms, depending on the means through which production is assured. Acceptable release documentation is outlined at Chapter 7.3.2.

Obligations

7.6.2.3 With a Production Organisation Approval, DASA impose a set of obligations as part of the approval and as part of its regulatory framework to ensure the safety and airworthiness of aircraft and aviation products being utilised within Defence. By placing obligations on production organisations, DASA aims to assure that the production of aircraft, components, and systems meet rigorous safety and airworthiness standards.

Superseded

Privileges

7.6.2.4 Under the DASR construct, an approved MPO will be granted privileges to conduct design work to support changes to the type certificate for which the MTCH manages. Granted privileges are documented on a Form 55. The Form 55 is the certificate outlining the Terms of Approval for the organisation and lists the privileges for which the organisation can utilise the approval.

Approval documentation

7.6.2.5 An organisation attains a DASR 21 MPO Approval by submitting a Form 55 Application for Military Production Organisation Approval (MDOA) for DASA consideration, or a Form 51 Application for Significant Changes to Production Organisation Approval where an MPOA is already held but scope change is needed. Along with the application, the organisation must furnish an exposition, whereby all the processes utilised to produce the category items under the ToA are documented.

7.6.2.6 Currently, DASA will not accept applications for production without a Military Production Organisation Approval as the authority is not resourced adequately to oversight this type of approval.

DASA production organisation assurance

7.6.2.7 Once a production organisation has gained an approval to produce category items, DASA will schedule oversight activities in order to assure the MPO has maintained/is maintaining their approval to the standard as governed by the DASR 21 regulations. DASA will look at the Organisational Structure, Responsibilities Assigned, Procedures, Resources which is detailed in the approved Production Organisation Exposition.

Further information

1. DASA AC 004/2018—Airworthiness Recognition in the DASP
2. DASR 21 Subpart G – Military Production Organisation Approval
3. DASP Manual Vol 3 Section 5.3 Annex F
4. DASP Manual Vol 3 Section 7.3

7.6.3 Letters of Agreement

(Reserved)

7.6.4 AUSMTSO Authorisations

(Reserved)

7.6.5 Guidance for Organisations Developing and Producing Aviation Software

Introduction

Superseded

7.6.5.1 This section provides guidance for the design and production of aviation software under DASR 21. This guidance does not apply to software designed or produced under recognition as defined in DASP Vol 3 Chapter 7.3.1 Production

7.6.5.2 Aviation software is classified as a 'part or appliance' and subject to the same rules applicable to all 'tangible' parts and appliances.

7.6.5.3 Aviation software refers only to software installed in an aircraft used for operating and controlling the aircraft and does not include mission system software, condition monitoring software, aeronautical information or ground-based aircraft diagnostic systems.

7.6.5.4 For the context of aviation software, the following definitions apply:

1. **Manufacturing** – is the development of aviation software, including compiling of source code into executable object code.
2. **Production** – is the process of preparing aviation software for distribution, including packaging the executable object code and associated engineering and technical data on distribution media.
3. **Replication** – is the process of copying aviation software (executable object code) that has been authorised through a production process.

Certification of Aviation Software

7.6.5.5 Organisations manufacturing software for installation on Defence registered aircraft must hold a Military Design Organisation Approval (MDOA) under DASR 21 Subpart J. The development of new (or the modification of existing) aviation software is a change to a product's type design and must be approved under DASR 21 Subpart D or E. For changes to aviation software classified as minor, a minor change approval can be issued by an organisation holding an MDOA in accordance with its Terms of Approval. For changes to aviation software classified as major, the approval must be issued by DASA as either an amended Military Type Certificate (MTC) or a Military Supplemental Type Certificate (MSTC).

Production of Aviation Software

7.6.5.6 The production of software is the responsibility of an organisation holding an appropriate Military Production Organisation Approval (MPOA) and the release of aviation software for installation on a Defence registered aircraft is via a DASR Form 1. The software's 'part' number (version) should be marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

7.6.5.7 DASR 21 does not allow the production of aviation software under an organisation's MDOA Terms of Approval. Organisations producing aviation software for installation in Defence registered aircraft must meet the requirements of DASR 21 Subpart G—Military Production Organisation Approval in order to obtain privileges to release the software for installation.

Replication of Aviation Software

7.6.5.8 Software authorised for installation on a Defence registered aircraft via a DASR Form 1 and provided to the Continuing Airworthiness Maintenance Organisation (CAMO) may be replicated by an Approved Maintenance Organisation (AMO) in accordance with OEM or DASR 21 MDO approved procedures. It is the responsibility of the CAMO or AMO to ensure that their quality systems have processes in place to manage and verify the integrity of the replicated software. This is typically done

Superseded

using a checksum value that is generated during production of software and provided to the CAMO or AMO alongside the produced software.

7.6.5.9 Any software replication process should also include a step to ensure the software's 'part' number (version) is marked on the media hosting the software for installation, in accordance with the requirements of DASR 21 Subpart Q.

Organisation Approval Requirements

7.6.5.10 Development and production of software are often done by the same organisation. In this case, the organisation must hold both a MDOA under DASR 21 Subpart J and a MPOA under DASR 21 Subpart G in order to obtain the necessary privileges to approve the development and production of aviation software. Typically, there are no organisations with an MPOA with software scope without a corresponding MDOA with software scope.

7.6.5.11 Underpinning these organisation approvals and privileges are a Design Assurance System documented in a Handbook (Design Organisation Exposition/DOE), and a Production Quality System documented in a Production Organisation Exposition (POE). For a software development and production organisation, it is not necessary to have discrete and dedicated stand-alone procedures manuals entitled 'DOE' or 'POE' to meet both sets of organisation approval requirements. A single manual, document (irrespective of its title) or set of procedures that covers the development and production of software may simultaneously meet the requirements of both a DOE and POE.

7.6.5.12 The regulatory requirements of a DOE (DASR 21.A.243) and a POE (DASR 21.A.143) are the minimum required of such a manual or document to be awarded the relevant organisation approval and privileges. Any manual or document(s) identified as a DOE/POE (or both simultaneously) should be a working level document(s) published for use by personnel working in the organisation. The DOE/POE should not be written purely to satisfy regulatory requirements, although this aspect will be assessed by DASA when reviewing the working level documentation and the organisation's staff's understanding of it.

Further Reading

1. DASR 21 Subpart G – Military Production Organisation approval
2. DASR 21 Subpart F – Production without Military Production Organisation approval
3. DASR 21 Subpart K – Parts and Appliances

7.6.6 GUIDANCE ON CONSIDERING EXPLOSIVES IN AVIATION DESIGNS

Introduction

7.6.6.1 This DASPMAN section explains what Military Design Organisations (MDO) and Military Type Certification Holders (MTCH) must consider when performing design activities on aircraft systems containing explosives and integrating air-launched stores containing explosives onto aircraft[82]. Such design activities include physical design changes to systems and equipment containing explosives, assessments that unrelated design changes do not adversely impact explosive safety, changes to Airworthiness Limitations (AwL), changes to explosives-related Instructions for Continuing Airworthiness (ICA), monitoring for new explosive-related hazards within safety management systems (SMS), and aircraft stores compatibility engineering activities.

Superseded

What is an explosive?

7.6.6.2 An explosive is '… a substance manufactured with a view to producing an explosion or pyrotechnic effect[83].'Many Defence aircraft contain explosives, either forming part of an aircraft system (such as ejection seats) and within air-launched stores such as bombs, missiles and gun ammunition[84].

Explosives requirements within Type Certification Basis

7.6.6.3 In deciding what type of explosive requirements should be included in an aircraft's Type Certification Basis (TCB) the key document is the *European Military Airworthiness Certification Criteria* (EMACC) published by the European Defence Agency. The EMACC indicates that all explosives forming part of an aircraft system should be considered when developing TCB requirements. Accordingly, the TCB should include explosive-related requirements during initial certification and when MDOs develop major or minor changes to the type design.

7.6.6.4 For aircraft stores containing explosives the EMACC implies that the TCB should only consider requirements relevant to the installation, integration and interface of the aircraft and stores. That is, the TCB should only include explosive-related design requirements to the extent they affect the store's installation, integration and interface. Any subsequent major or minor changes to the type design should also only consider the installation, integration and interface of the store.

Legislative requirements

7.6.6.5 The legislation relevant to the safe design, maintenance and operation of Defence aircraft containing explosives is the Work Health and Safety Act (Cth) 2011 (the WHS Act), the Explosives Act (Cth) 1961, and their subordinate regulations.

Explosive Safety Regulatory Framework

7.6.6.6 To comply with their explosive-related obligations under all this legislation, MDOs and MTCHs must understand Defence's *Explosive Safety Regulatory Framework* (ESRF), which amplifies this legislation for the explosives context. The ESRF purpose is to provide a Defence-wide explosive safety risk management framework which ensures explosives safety risks are effectively managed. Explosives safety aims to '… prevent premature, unintentional, or unauthorised initiation of explosives and devices containing explosives; and with minimising the effects of explosions, combustion, toxicity, and any other deleterious effects'[85].Within the ESRF, Director General Explosive Ordnance (DGEO) is the Explosive Ordnance Safety Regulator (EOSR), supported by the Director of Ordnance Safety (DOS).

7.6.6.7 Under the ESRF, the safe conduct of activities involving explosives (including design) requires adherence to the following three fundamental concepts:

1. Explosives must be designed and manufactured to design requirements so as to eliminate or minimise explosives safety hazards so far as is reasonably practicable. This concept is referred to as 'safety and suitability for service' (S3).

2. Activities involving explosives must be conducted at locations where the consequence of an explosives safety mishap is understood, and risks are minimised (referred to as a 'safe location').

Superseded

3. Activities involving explosives must be conducted through safe work practices, conducted by trained and competent personnel, which will minimise both the likelihood and consequences of an explosives safety mishap (referred to as 'safe work practices').

7.6.6.8 In applying these three concepts, the ESRF provides requirements (12 principles and 28 regulations) and guidance relevant to the design, production, operation, maintenance, handling, storage and transport of explosives throughout its lifecycle.

7.6.6.9 The ESRF is documented within the following Defence Explosive Ordnance Publications (DEOP):

1. DEOP 100 comprises three volumes of which only Volume 2 Defence Explosives Safety Regulatory Framework has been issued. Volume 2 describes the 12 mandatory principles of the ESRF, not all of which are relevant to aviation design activities. For each principle, information is provided on its rationale, the expected outcome, the constraints, obligations, external requirements and controls. DEOP 100 Volume 2 also describes the ESRF risk management and assurance processes. The ESRF relies on organisational compliance with its mandatory requirements but does not provide organisational certifications.

2. DEOP 101 provides the 28 ESRF regulations with not all applying to aviation design activities. The regulations are not in a standard format, but most comprise a general overview, the requirements, responsibilities and any accompanying procedures. Each of the 28 regulations contain some mandatory requirements.

3. DEOP 102 provides information relevant to assessing the 'Safety and Suitability for Service of Defence Explosive Ordnance'. The publication mentions the 12 principles and the 28 regulations, while providing no further requirements relevant to aviation design activities. This DEOP also discusses several explosive-related hazards[86].

7.6.6.10 Within the ESRF, the EOSR releases Defence Explosives Safety Advisory Circulars (ESAC) to promulgate important safety information. ESACs do not mandate any actions, but provide informed, well-considered safety advice and guidance. ESACs can be accessed at: drnet/JCG/JLC/ExplosiveOrdnance/DOS/Pages/ESRF.aspx (Available on DPN Only)

Relationship between the DASF and ESRF

7.6.6.11 The ESRF is specifically intended to integrate with and support other Defence regulatory frameworks that aim to achieve safety outcomes, including aviation safety. Comparison of the DASF and ESRF demonstrates that regulated organisations within the DASF can comply with both the Defence Aviation Safety Regulations (DASR) and relevant ESRF requirements, with no inconsistencies between the two safety frameworks. Importantly, both safety frameworks are subject to the WHS Act's concept of shared duty holders (s16), who must consult, co-operate and co-ordinate their activities (s46) to ensure explosive-related risks are eliminated or otherwise minimised so far as is reasonably practicable (s17).

7.6.6.12 DASA regulates the design of aircraft systems and the integration of all air-launched stores onto a type. Complementing these regulations, DGEO provides mandatory explosive-related requirements (both principles and regulations) for the design of aircraft systems containing explosives and air-launched stores containing explosives.

Superseded

7.6.6.13 The S3 construct within the ESRF requires consideration of the hazards posed to explosives safety by carriage environments. Accordingly, the ESRF requires designers to consider whether the failure or partial performance of the non-explosive components of aircraft stores adversely affects the safety of the explosives within the store. Forms of component failure or partial performance that do not affect explosive safety are outside the ESRF scope, but are considered by Guided Weapons and Explosive Ordnance Group (GWEO) as part of its broader safety responsibilities.

ESRF applicability to DASR 21 scope

7.6.6.14 Several ESRF principles and regulations fall within the scope of DASR 21. Specifically:

1. ten of the 12 ESRF principles (Principles 1-10) impose obligations on aircraft designers within MDOs and MTCH organisations
2. all of these ten principles fall within the scope of DASR 21
3. compliance with DASR 21 provides total compliance with one principle (Principle 1), partial compliance with eight principles (Principles 2, 3, 5, 6, 7, 8, 9 and 10) and no compliance with one principle (Principle 4)
4. only four of the 28 ESRF regulations (1.1, 1.2, 1.5 and 2.5) within DEOP 101 impose obligations on aviation designers within MDOs and MTCH organisations
5. of these four regulations, three fall within the scope of DASR 21 (1.1, 1.5 and 2.5)
6. compliance with DASR 21 provides only partial compliance with these three regulations.

7.6.6.15 These principles and regulations within the scope of DASR 21 provide no limits or constraints on which individuals or organisations within Defence may perform design activities for aircraft systems and aircraft stores containing explosives.

Satisfying applicable ESRF requirements

7.6.6.16 Compliance with DASR 21 provides total or partial compliance with several mandatory ESRF principles and regulations. To achieve full compliance, MDOs and MTCHs must:

1. obtain explosives safety hazard and risk management advice from personnel and organisations competent in explosives safety management (refer paragraph 7.6.6.18)
2. when complying with DASR SMS, ensure that consideration is given to explosive-specific hazards and risks
3. ensure that explosives safety hazards and residual risks of explosives are identified and communicated to affected Services, Groups and others (including non-Defence entities)
4. aim to reduce the consequences of on-aircraft explosive hazards through careful design of where explosives are located in the aircraft and the quantity of explosives used
5. ensure that personnel performing design activities on aircraft systems and air-launched stores containing explosives receive explosive-related training compliant with ESRF Regulation 1.1 (eDEOP 101)[87]

Superseded

6. when creating Instructions for Continuing Airworthiness (ICA) for aircraft systems and air-launched stores containing explosives, be aware of the inspection requirements in ESRF Regulation 1.5 (eDEOP 101)

7. when engaged in the process for the initial certification of explosives installed in aircraft systems and amendments to their life limits, comply with the process described in Annex B.

7.6.6.17 While outside the scope of DASR 21, where MDOs handle explosives as part of the design process, they should ensure their sites, platforms and facilities have the necessary facility certifications, and that the minimum number of people are exposed and are aware of the risks.

Explosives safety hazard and risk management advice

7.6.6.18 MDOs and MTCHs can obtain explosives safety hazard and risk management advice from the following organisations competent in explosives safety management:

1. the Directorate of Ordnance Safety within Joint Logistics Command

2. Joint Proof and Experimental Unit within Joint Logistics Command

3. Aerospace Explosive Ordnance Systems Program Office within GWEO

4. Directorate of Engineering and Technical within GWEO's Systems Division.

7.6.6.19 MDOs and MTCHs should have confidence in the explosives safety hazard and risk management advice provided by these organisations because they:

1. have roles (either regulatory or in-practice) that require them to comprehensively understand explosive safety hazards and risks

2. are subject to the requirements of the well-established ESRF and will provide advice compliant with all relevant ESRF principles and regulations

3. have an extensive demonstrated history of providing safe explosives advice across Defence, including to the aviation community

4. work within well-developed engineering frameworks that have evolved over several years.

7.6.6.20 MDOs and MTCHs can consume explosives safety hazard and risk management advice from these specified organisations, without the need to invoke DASR 21.A.239. That is, they do not need to consider these organisations as a '… partner or subcontractor' and are not obliged to specify the manner in which the MDO/MTCH design assurance system accounts for the acceptability of the advice provided by these external organisations or specialist personnel within them.

7.6.6.21 Some forms of advice may not need be obtained case-by-case but could be obtained as a 'standing' advice relevant to a particular type of design change whenever it occurred (for example a proposed change to a component throwaway life or maintenance interval). The relevance of specific 'standing' advice to a new circumstance would depend on the aircraft type, the form of explosives, the aircraft's operating environment and its specific sustainment arrangements.

7.6.6.22 The relationships that MDOs establish with specialist explosives organisations should be documented in the Handbook (Design Organisation Exposition), required by DASR 21.A.243. Similarly,

Superseded

MTCHs should documents their relationships in the Type Continued Airworthiness Exposition required by GM 21.A.14(c) and discussed at DASPMAN Chapter 5.3 Annex J Appendix 1.

Other guidance

7.6.6.23 A variety of other Defence stakeholders can contribute to the safe design of aircraft systems containing explosives and the safe integration of air-launched stores containing explosives. Such organisations include:

1. **Maintenance organisations** - to understand the maintenance implications of design decisions and the utility of proposed ICA relating to explosives
2. **CAMOs** - to understand the continuing airworthiness implications of explosive-related design decisions, such as the potential need for pre-flight inspections and the effect of explosive-related component lives on the aircraft maintenance program
3. **MAOs** - to understand the operational implications of explosives-related design decisions, such as preferred aircrew actions for stores release
4. **DASA** - to understand the scope of the ability to approve minor explosives-related design changes
5. **Organisations who transport and store explosives.** Organisations within various Defence Groups and Services, whose primary roles is transporting and storing explosives, would not usually be a source of explosives design safety advice. Nevertheless, there may be occasions when MDOs should seek information from them that provides necessary context for design activities.

Design activities for aircraft systems containing explosives

7.6.6.24 An aircraft system may contain explosives, usually to separate an air-launched store from the aircraft, but sometimes to separate parts of the aircraft such as ejection seats and cockpit canopies. Specific guidance on the design activities for aircraft systems containing explosives is provided in Annex A.

Design activities for ALSE/role equipment containing explosives but not part of the aircraft's type design

7.6.6.25 ALSE/Role equipment containing explosives, but not part of the aircraft type design, are outside the scope of this chapter. Nevertheless, the ESRF requirements at 7.6.6.16 a/c/d/e still apply to organisations performing relevant design activities.

Design activities for air-launched stores containing explosives

7.6.6.26 An air-launched store is an aircraft store that is intended to be separated from an aircraft in flight. Some air-launched stores contain explosives:

1. to separate the store from the aircraft (such as some chaff, some flares, some sonobuoys and gun ammunition)[88]
2. to create an explosive effect post separation (such as bombs, missiles and flares)
3. for both purposes.

Superseded

7.6.6.27 Design activities on the explosives within air-launched stores are outside an MDO's scope, performed within the scope of GWEO organisations.

7.6.6.28 Specific guidance on the integration of air-launched stores containing explosives, which is within the MDO/MTCH scopes, is provided in Annex B.

Annexes

(a) Design activities for aircraft systems containing explosives

(b) Integration of air-launched stores containing explosives

Superseded

8. Continuing Airworthiness

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to,

Superseded

continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff

Superseded

– see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.

2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which "may" be considered as line maintenance. The word "may" is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on 'Privileges and limitations of line maintenance'. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 'Examples of maintenance activities considered to be base maintenance' of this Chapter.

Superseded

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);
3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:
4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:
    i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;
    ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

Superseded

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

6. A "decision making process" (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of 'decision making process'.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered "line maintenance" when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the "R1 check", where the customer operator would request the performance of works in addition to the "R1" routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the "decision making process".

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 'Examples of maintenance activities considered to be base maintenance' having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the "decision making process", may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base

Superseded

maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been ‘signed off’ by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓	[redacted]	✓	[redacted]	✓	✓
Non Type Rated B1/B2 MAML Holder	✓	[redacted]	✓	[redacted]	✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓	[redacted]	✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓	[redacted]	✓	[redacted]	✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.

2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These "invigilators" do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation's examination procedures with a specific emphasis on the exam's integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual's personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

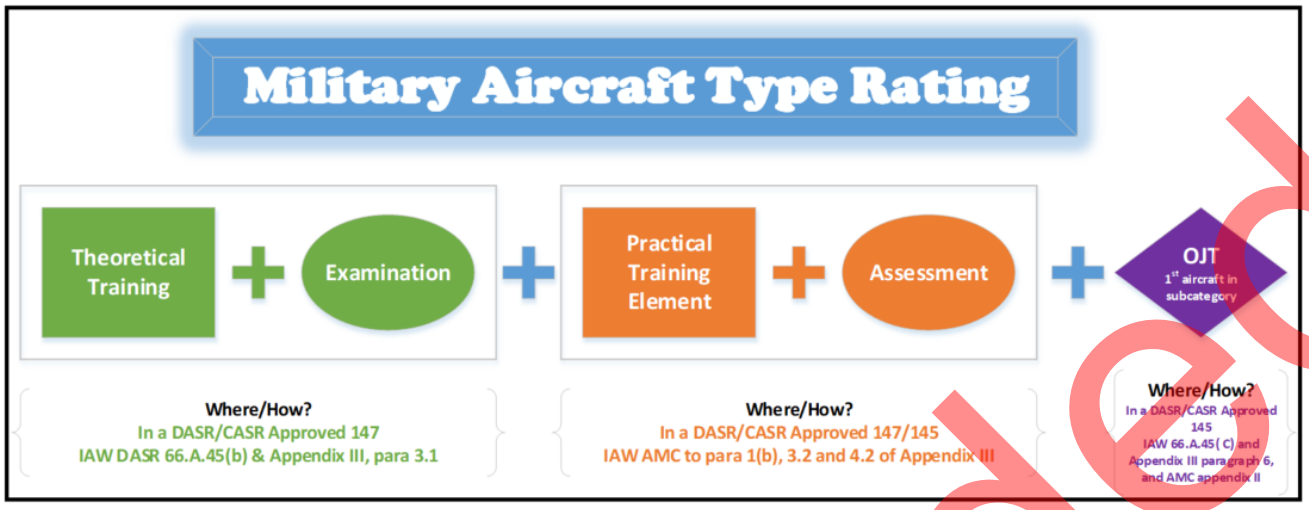


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requioirements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
…..			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

Superseded

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

8.2. Continuing Airworthiness

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

Superseded

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

Superseded

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

Superseded

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or
2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;
    i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.
    ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.
    iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and
3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

Superseded

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

Superseded

8.2.4 Aircraft Maintenance Programme

Introduction

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

Superseded

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

Superseded

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

1. maintenance records for maintenance carried out on the aircraft;
2. copies of authorised release certificates for product, parts or appliances; and
3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;
2. authorised release certificates for the parts; and
3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

Superseded

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

Superseded

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

Superseded

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has

Superseded

been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

Superseded

1. Where the change requires an adjustment of the MMEL certification basis;

2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);

3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:

    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;

    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

    iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

    i. The change is only to the applicability of an item for configuration management purposes;

    ii. The change is the removal of an item;

    iii. The change is an increase in the number of items required for dispatch; and

    iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

    i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

    ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL

Superseded

items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21
2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

Superseded

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;
2. Digital access to a copy of the proposed MEL;
3. All OIP created for use of the MEL; and
4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another

Superseded

document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;
2. Placarding requirements as per the MEL;
3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;
4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;
5. Controlling categorised repair intervals; and
6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;
2. Identify the item with its MEL number; and
3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and

Superseded

are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

Superseded

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

Superseded

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.

2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

Superseded

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which “may” be considered as line maintenance. The word “may” is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on ‘Privileges and limitations of line maintenance’. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under ‘Examples of maintenance activities considered to be base maintenance’;
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

Superseded

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

6. A "decision making process" (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of 'decision making process'.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered "line maintenance" when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the "R1 check", where the customer operator would request the performance of works in addition to the "R1" routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the "decision making process".

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 'Examples of maintenance activities considered to be base maintenance' having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the "decision making process", may be for example:

Superseded

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

Superseded

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA

2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which

Superseded

supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA

Superseded

recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired
2. type or complexity of composite repair being conducted
3. specific nature of training undertaken
4. experience of personnel
5. supervision requirements
6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or
2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

Superseded

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.

2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.

3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).

2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and

Superseded

implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.

3. Authorise technicians who have obtained CASA welding authority

4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and

2. Passed the welding testing set out in the CASA Welding Syllabus.

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.

2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

Superseded

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.

2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;

2. Date such maintenance was completed;

3. Identity of the organisation and person issuing the CRS; and

4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.

2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).

Superseded

3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly,

Superseded

a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

Superseded

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

Superseded

8.3.3.26 IAW DASR 145.A.50(b) “A certificate of release to service shall be issued before flight at the completion of any maintenance”. Subsequently, “any maintenance” can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the “any maintenance” interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed

Superseded

by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks, to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

Superseded

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓		✓		✓	✓
Non Type Rated B1/B2 MAML Holder	✓		✓		✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓		✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓		✓		✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

Superseded

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Superseded

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

Superseded

When is an Authorised Release Certificate required?

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

Superseded

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified

Superseded

by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.

Superseded

2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the

Superseded

procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

Superseded

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

Superseded

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

Superseded

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

   ii. an addition of a category or subcategory to a MAML; or

   iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

Superseded

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The “Basic Training Course” requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

Superseded

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Superseded

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

Superseded

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for

Superseded

different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor's qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.
3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.
4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.
5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.
6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.
7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.
8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.
9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.
10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and

Superseded

skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.
3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.
4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.
5. Appropriately experienced in the aircraft maintenance environment.
6. Able to demonstrate good knowledge, complimented with communication skills in the English language.
7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).
9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and

Superseded

experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.
2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.
3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.
4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.
5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.
6. Appropriately experienced in the aircraft maintenance environment.
7. Able to demonstrate good knowledge, complimented with communication skills in the English language.
8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).
10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.
3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

Superseded

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These "invigilators" do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation's examination procedures with a specific emphasis on the exam's integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual's personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be

Superseded

filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.
2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.
3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.
4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.
5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.
6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.
7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.
8. **Compliance:** The equipment must comply with all relevant regulations and standards.
9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.
10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

Superseded

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.

2. The simulator should be well-maintained and regularly calibrated.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.

2. The AMTO should have a system for monitoring and tracking student progress.

3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:

    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.

Superseded

ii. The training material must be easy to understand and follow.

iii. The training material must include practical exercises that reinforce theoretical knowledge.

iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.
2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.
2. The training material must be consistent with the relevant regulations and standards.
3. The training material must be presented in a manner that is engaging and interesting for students.
4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

Superseded

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards

Superseded

including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Superseded

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field

Superseded

of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.

7. Some additional important points to consider when developing or maintaining student records include:

   i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.

   ii. The record must be accurate, complete, and up-to-date at all times.

   iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.

   iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

Superseded

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

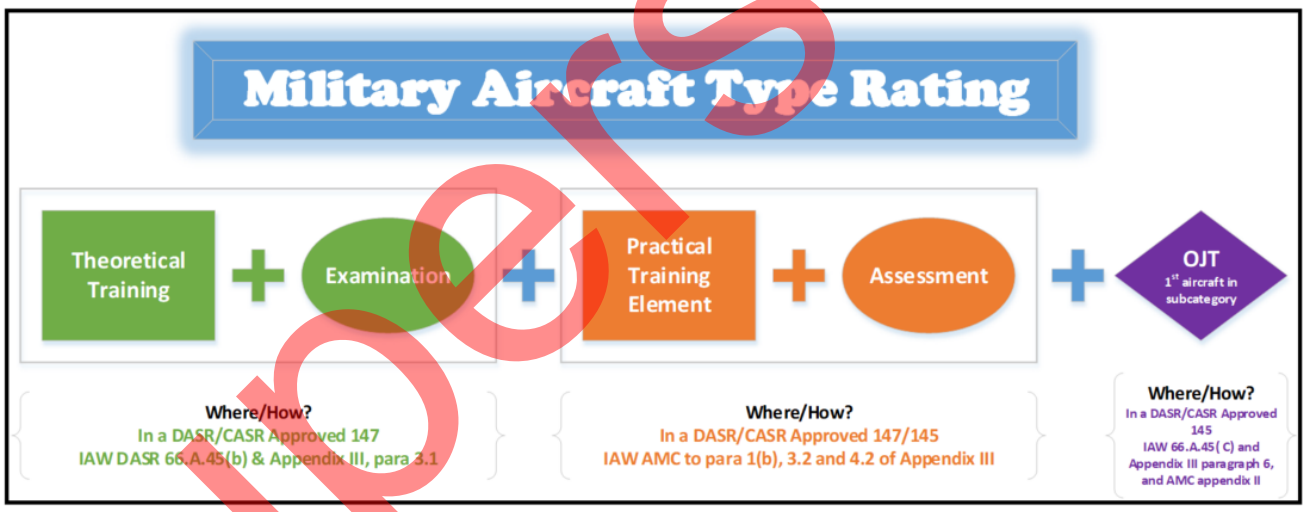


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

Superseded

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA
2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix
3. MATR Theory Element (Learning Management Plan)
4. MATR Practical Element (Practical Training Logbooks)
5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

Superseded

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and

2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;

2. the material and documentation provided to the student;

3. the qualification of instructors, examiners;

Superseded

4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

Superseded

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

    i. the only reasonable method due to the complexity of the task, or

    ii. the only method available to enable familiarity with component location/ identification, or

    iii. the only method available to demonstrate the use of special equipment / tools.

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.

2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).

3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.

4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

Superseded

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:
   - involve several comprehensive steps to perform
   - have multiple decision points in order to complete
   - may use specialised test equipment
   - often requires more than one person to perform
   - have direct impact on flight safety

   ii. Simple tasks may have the following attributes:
   - does not use specialised test equipment
   - can be completed by a single person
   - does not require any in-depth skill/knowledge
   - does not involve decision steps (no troubleshooting)
   - may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a

Superseded

reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Superseded

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requiorements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			
99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor’s details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.

Superseded

6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).

7. Task type (R/I, LOC, SGH etc.).

8. Date of each individual task completion.

9. Instructor signatures or stamps.

10. Spare entries for documenting additional/replacement “ad hoc” training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of the aircraft’s systems and will have developed an understanding of each student’s specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation’s bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

Superseded

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;
2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';
3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';
4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.
5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;
2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the

Superseded

platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,
2. Qualifications of the assessor and supervisors performing the OJT,
3. OJT logbook/worksheets format and content,
4. OJT compliance report format and content,
5. Production planning for the implementation of OJT (how to plan the tasks),
6. Supervision process and the assessment process, what to do if the assessment is not positive,
7. Safe release to service of the aircraft after OJT,
8. OJT Log Book final assessment process and associated forms:
    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.
    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Superseded

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

8.2.2. Operation of an Aircraft with a known Defect

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

Superseded

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

Superseded

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.
2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which "may" be considered as line maintenance. The word "may" is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on 'Privileges and limitations of line maintenance'. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 'Examples of maintenance activities considered to be base maintenance' of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

Superseded

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);
3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:
4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:
   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;
   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);
5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

Superseded

6. A “decision making process” (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of ‘decision making process’.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered “line maintenance” when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the “R1 check”, where the customer operator would request the performance of works in addition to the “R1” routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the “decision making process”.

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the “decision making process”, may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order

Superseded

to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed ('sign off') and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓	[redacted]	✓	[redacted]	✓	✓
Non Type Rated B1/B2 MAML Holder	✓	[redacted]	✓	[redacted]	✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS See note 2	✓	✓
A MAML Holder	✓	✓ Task Authorised See note 3	✓	[redacted]	✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓	[redacted]	✓	[redacted]	✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These “invigilators” do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation’s examination procedures with a specific emphasis on the exam’s integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual’s personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

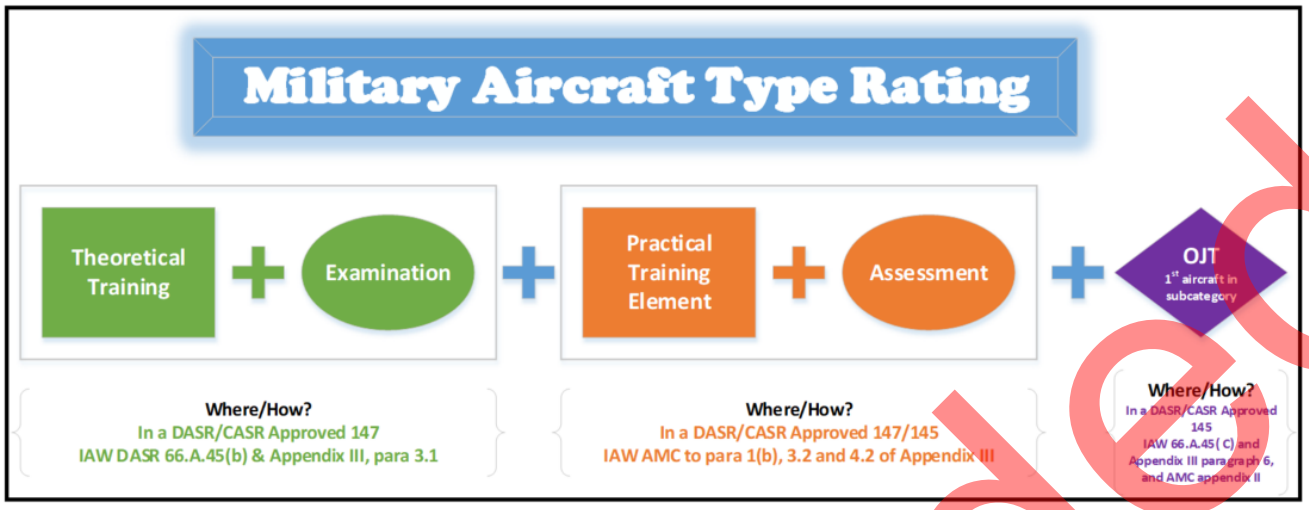


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requioerements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
…..			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Superseded

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

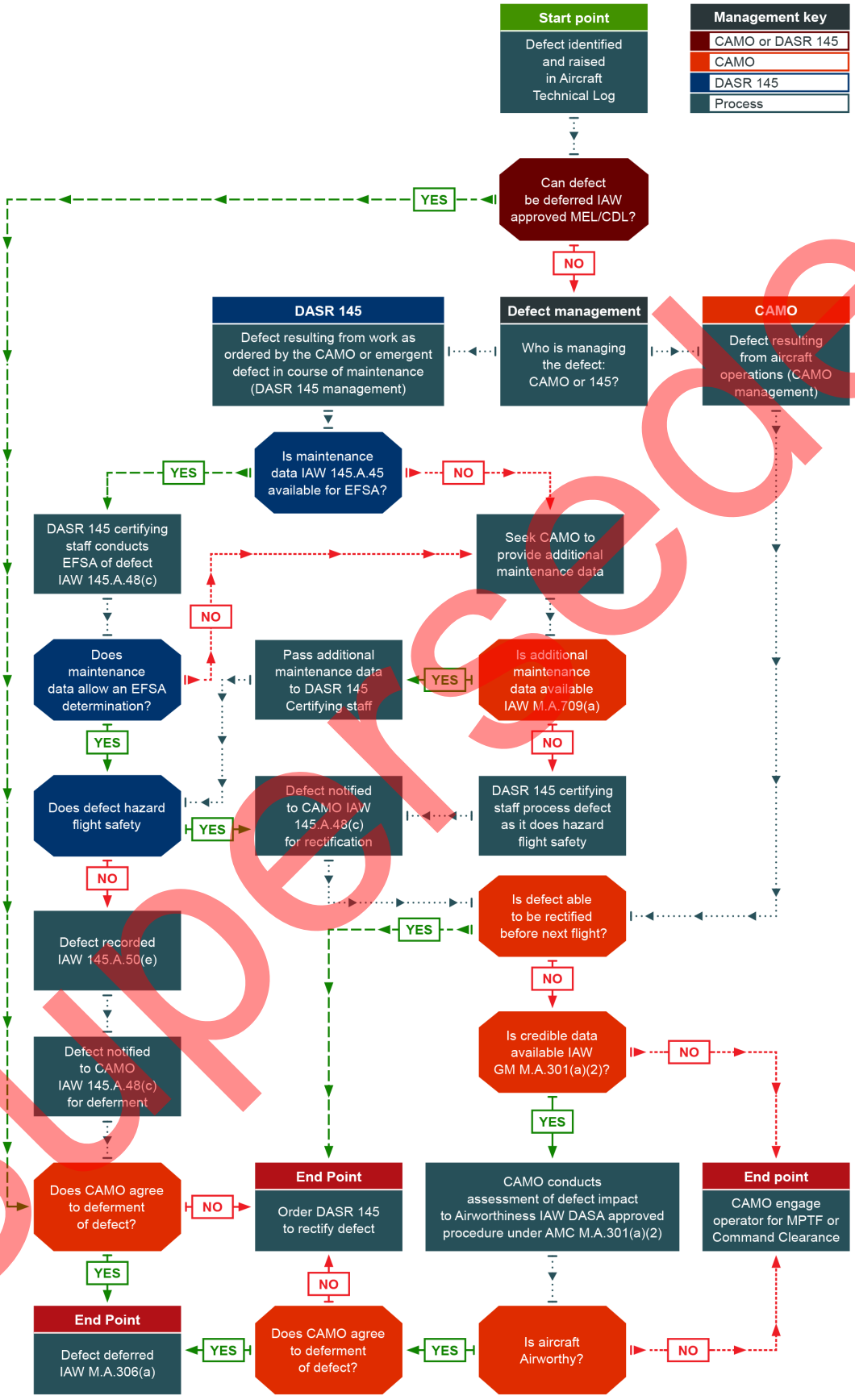
DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

Annex A - Deferred Defect Management Process - Flowchart

Superseded


Start point
Defect identified and raised in Aircraft Technical Log
Management key
CAMO or DASR 145
CAMO
DASR 145
Process
Can defect be deferred IAW approved MEL/CDL?
YES
NO
DASR 145
Defect resulting from work as ordered by the CAMO or emergent defect in course of maintenance (DASR 145 management)
Defect management
Who is managing the defect: CAMO or 145?
CAMO
Defect resulting from aircraft operations (CAMO management)
Is maintenance data IAW 145.A.45 available for EFSA?
YES
NO
DASR 145 certifying staff conducts EFSA of defect IAW 145.A.48(c)
Seek CAMO to provide additional maintenance data
NO
Does maintenance data allow an EFSA determination?
Pass additional maintenance data to DASR 145 Certifying staff
YES
Is additional maintenance data available IAW M.A.709(a)
YES
NO
Does defect hazard flight safety
YES
Defect notified to CAMO IAW 145.A.45(c) for rectification
DASR 145 certifying staff process defect as it does hazard flight safety
NO
Is defect able to be rectified before next flight?
YES
NO
Defect recorded IAW 145.A.50(e)
Is credible data available IAW GM M.A.301(a)(2)?
NO
Defect notified to CAMO IAW 145.A.48(c) for deferment
YES
Does CAMO agree to deferment of defect?
NO
End Point
Order DASR 145 to rectify defect
CAMO conducts assessment of defect impact to Airworthiness IAW DASA approved procedure under AMC M.A.301(a)(2)
End point
CAMO engage operator for MPTF or Command Clearance
YES
NO
End Point
Defect deferred IAW M.A.306(a)
YES
Does CAMO agree to deferment of defect?
YES
Is aircraft Airworthy?
NO

Superseded

8.2.3. Alternate Artefacts

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

Superseded

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

Superseded

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.
2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which "may" be considered as line maintenance. The word "may" is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on 'Privileges and limitations of line maintenance'. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 'Examples of maintenance activities considered to be base maintenance' of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

Superseded

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);
3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:
4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:
   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;
   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);
5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

Superseded

6. A “decision making process” (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of ‘decision making process’.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered “line maintenance” when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the “R1 check”, where the customer operator would request the performance of works in addition to the “R1” routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the “decision making process”.

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the “decision making process”, may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order

Superseded

to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed ('sign off') and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓	[redacted]	✓	[redacted]	✓	✓
Non Type Rated B1/B2 MAML Holder	✓	[redacted]	✓	[redacted]	✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS See note 2	✓	✓
A MAML Holder	✓	✓ Task Authorised See note 3	✓	[redacted]	✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓	[redacted]	✓	[redacted]	✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These “invigilators” do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation’s examination procedures with a specific emphasis on the exam’s integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual’s personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

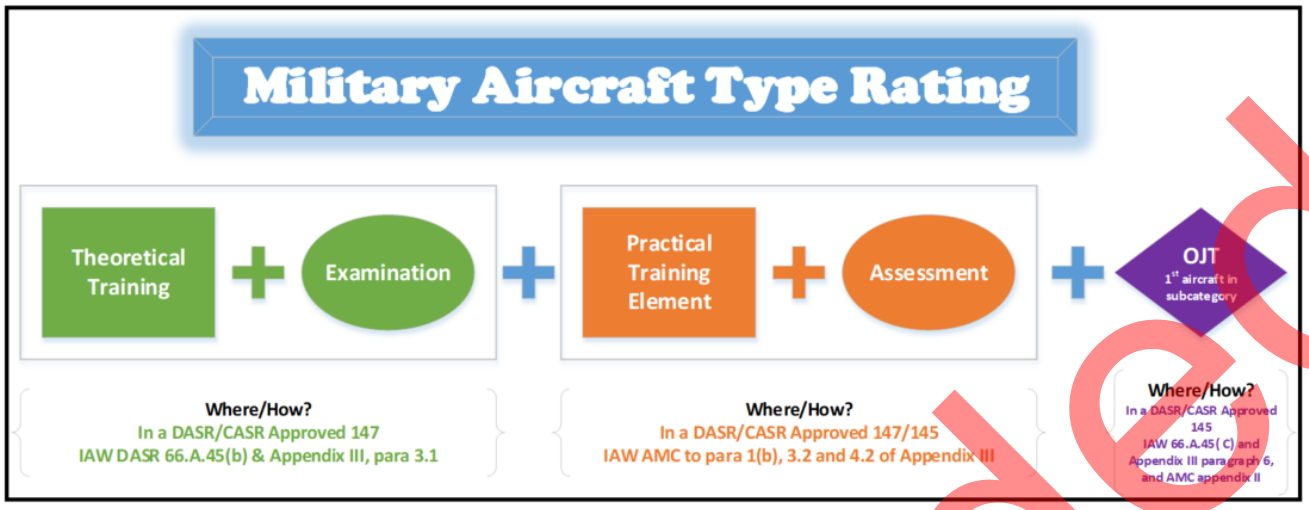


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requiorements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Superseded

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

8.2.6. Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

Superseded

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

Superseded

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.
2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which “may” be considered as line maintenance. The word “may” is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on ‘Privileges and limitations of line maintenance’. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

Superseded

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);
3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:
4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:
   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;
   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);
5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

Superseded

6. A “decision making process” (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of ‘decision making process’.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered “line maintenance” when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the “R1 check”, where the customer operator would request the performance of works in addition to the “R1” routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the “decision making process”.

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the “decision making process”, may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order

Superseded

to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed ('sign off') and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓	[redacted]	✓	[redacted]	✓	✓
Non Type Rated B1/B2 MAML Holder	✓	[redacted]	✓	[redacted]	✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS See note 2	✓	✓
A MAML Holder	✓	✓ Task Authorised See note 3	✓	[redacted]	✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓	[redacted]	✓	[redacted]	✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.

2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These “invigilators” do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation’s examination procedures with a specific emphasis on the exam’s integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual’s personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

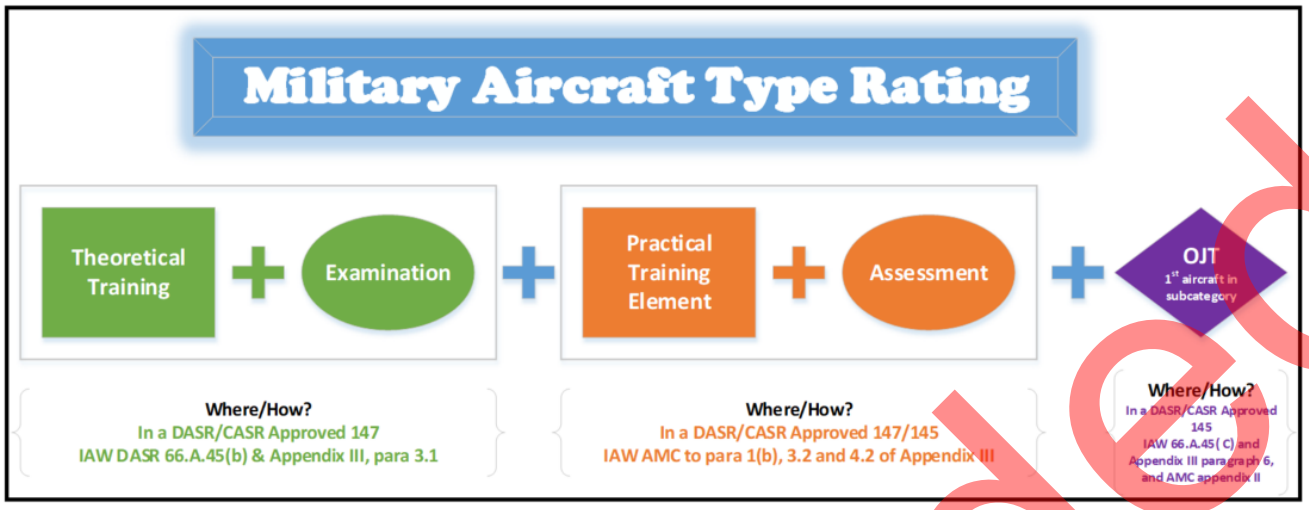


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requioerements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
…..			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Superseded

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

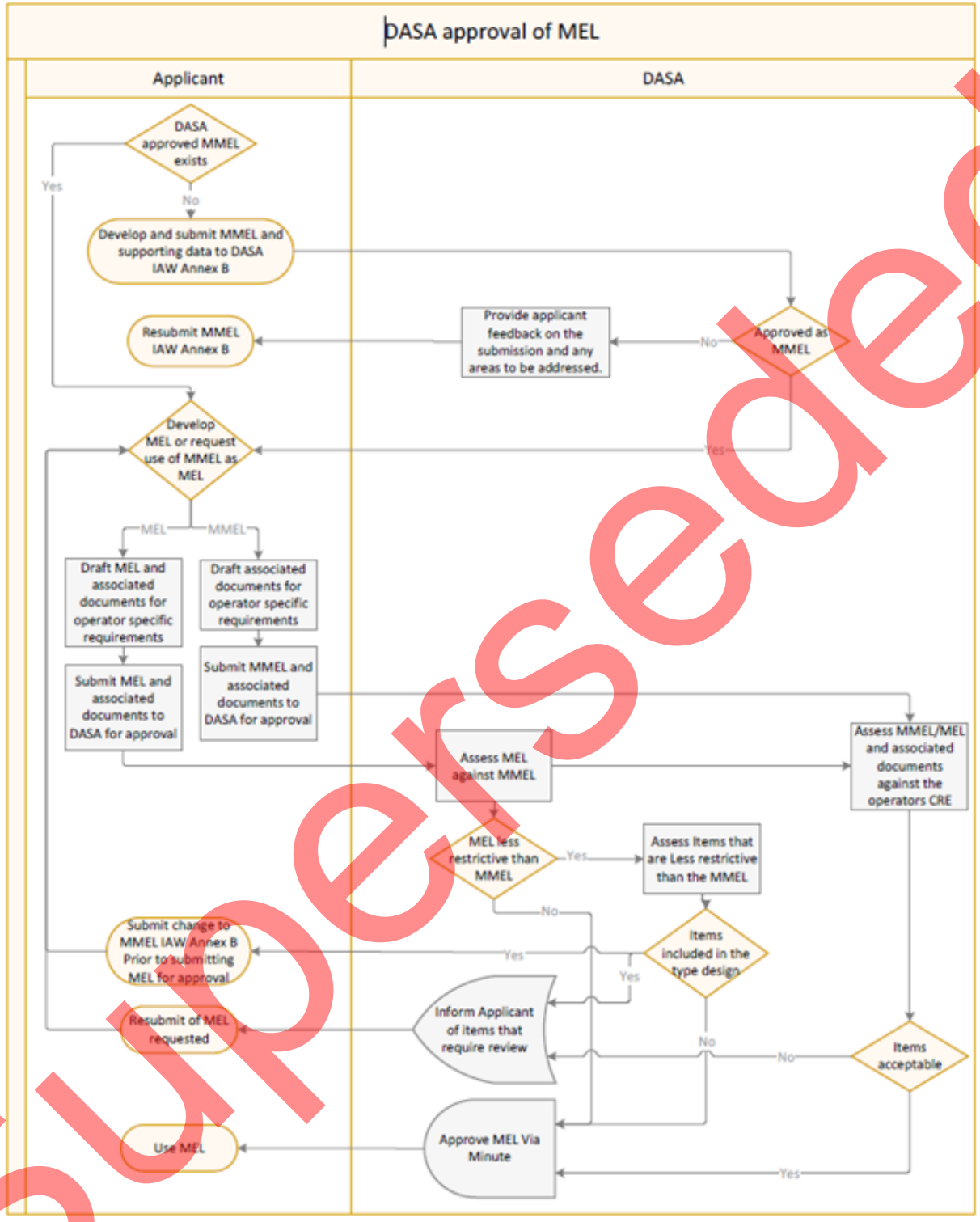
The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria.	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

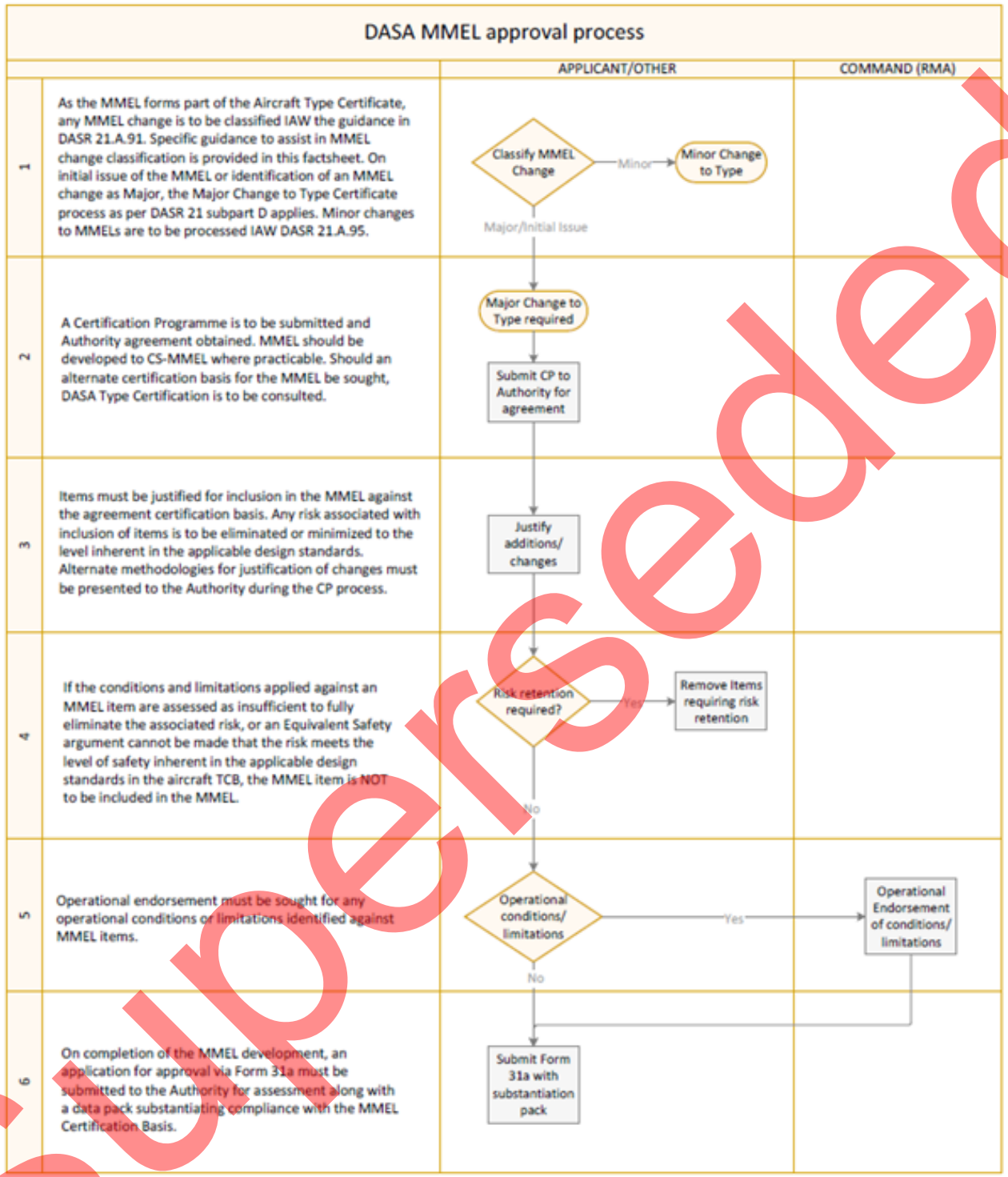
Superseded

Appendix 1 - DASA MEL Approval Process



Superseded

Appendix 2: DASA MMEL Approval Process



Superseded

8.3. Maintenance Organisations

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

Superseded

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

Superseded

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or
2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;
    i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.
    ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.
    iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and
3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

Superseded

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

Superseded

8.2.4 Aircraft Maintenance Programme

Introduction

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

Superseded

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

Superseded

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

1. maintenance records for maintenance carried out on the aircraft;
2. copies of authorised release certificates for product, parts or appliances; and
3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;
2. authorised release certificates for the parts; and
3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

Superseded

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

Superseded

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

Superseded

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has

Superseded

been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

Superseded

1. Where the change requires an adjustment of the MMEL certification basis;

2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);

3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:

   i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;

   ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

   iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL

Superseded

items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21
2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

Superseded

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;
2. Digital access to a copy of the proposed MEL;
3. All OIP created for use of the MEL; and
4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another

Superseded

document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;
2. Placarding requirements as per the MEL;
3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;
4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;
5. Controlling categorised repair intervals; and
6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;
2. Identify the item with its MEL number; and
3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and

Superseded

are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

Superseded

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

Superseded

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.

2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

Superseded

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which “may” be considered as line maintenance. The word “may” is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on ‘Privileges and limitations of line maintenance’. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under ‘Examples of maintenance activities considered to be base maintenance’;
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

Superseded

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

6. A "decision making process" (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of 'decision making process'.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered "line maintenance" when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the "R1 check", where the customer operator would request the performance of works in addition to the "R1" routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the "decision making process".

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 'Examples of maintenance activities considered to be base maintenance' having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the "decision making process", may be for example:

Superseded

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

Superseded

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA

2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which

Superseded

supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA

Superseded

recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired
2. type or complexity of composite repair being conducted
3. specific nature of training undertaken
4. experience of personnel
5. supervision requirements
6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or
2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

Superseded

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.

2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.

3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).

2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and

Superseded

implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.

3. Authorise technicians who have obtained CASA welding authority

4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and

2. Passed the welding testing set out in the CASA Welding Syllabus.

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.

2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

Superseded

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).

Superseded

3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly,

Superseded

a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

Superseded

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

Superseded

8.3.3.26 IAW DASR 145.A.50(b) “A certificate of release to service shall be issued before flight at the completion of any maintenance”. Subsequently, “any maintenance” can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the “any maintenance” interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed

Superseded

by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks, to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

Superseded

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓		✓		✓	✓
Non Type Rated B1/B2 MAML Holder	✓		✓		✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓		✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓		✓		✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

Superseded

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Superseded

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

Superseded

When is an Authorised Release Certificate required?

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

Superseded

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified

Superseded

by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.

Superseded

2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the

Superseded

procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

Superseded

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

Superseded

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

Superseded

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

   ii. an addition of a category or subcategory to a MAML; or

   iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

Superseded

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The “Basic Training Course” requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

Superseded

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Superseded

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

Superseded

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for

Superseded

different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor's qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.
3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.
4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.
5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.
6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.
7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.
8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.
9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.
10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and

Superseded

skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.
3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.
4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.
5. Appropriately experienced in the aircraft maintenance environment.
6. Able to demonstrate good knowledge, complimented with communication skills in the English language.
7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).
9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and

Superseded

experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.
2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.
3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.
4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.
5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.
6. Appropriately experienced in the aircraft maintenance environment.
7. Able to demonstrate good knowledge, complimented with communication skills in the English language.
8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).
10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.
3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

Superseded

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These "invigilators" do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation's examination procedures with a specific emphasis on the exam's integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual's personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be

Superseded

filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.
2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.
3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.
4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.
5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.
6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.
7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.
8. **Compliance:** The equipment must comply with all relevant regulations and standards.
9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.
10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

Superseded

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.

2. The simulator should be well-maintained and regularly calibrated.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.

2. The AMTO should have a system for monitoring and tracking student progress.

3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:

    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.

Superseded

ii. The training material must be easy to understand and follow.

iii. The training material must include practical exercises that reinforce theoretical knowledge.

iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.
2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.
2. The training material must be consistent with the relevant regulations and standards.
3. The training material must be presented in a manner that is engaging and interesting for students.
4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

Superseded

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards

Superseded

including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Superseded

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field

Superseded

of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.

7. Some additional important points to consider when developing or maintaining student records include:

   i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.

   ii. The record must be accurate, complete, and up-to-date at all times.

   iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.

   iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

Superseded

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

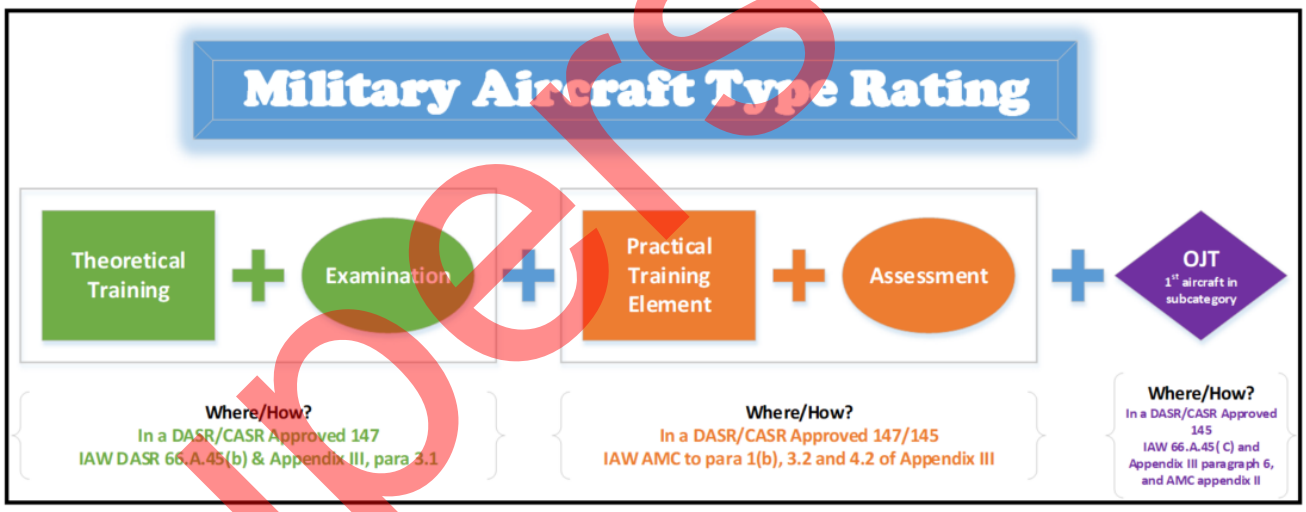


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

Superseded

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA
2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix
3. MATR Theory Element (Learning Management Plan)
4. MATR Practical Element (Practical Training Logbooks)
5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

Superseded

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and

2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;

2. the material and documentation provided to the student;

3. the qualification of instructors, examiners;

Superseded

4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

Superseded

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

    i. the only reasonable method due to the complexity of the task, or

    ii. the only method available to enable familiarity with component location/ identification, or

    iii. the only method available to demonstrate the use of special equipment / tools.

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.

2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).

3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.

4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

Superseded

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:
   - involve several comprehensive steps to perform
   - have multiple decision points in order to complete
   - may use specialised test equipment
   - often requires more than one person to perform
   - have direct impact on flight safety

   ii. Simple tasks may have the following attributes:
   - does not use specialised test equipment
   - can be completed by a single person
   - does not require any in-depth skill/knowledge
   - does not involve decision steps (no troubleshooting)
   - may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a

Superseded

reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Superseded

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requiorements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			
99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor’s details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.

Superseded

6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).

7. Task type (R/I, LOC, SGH etc.).

8. Date of each individual task completion.

9. Instructor signatures or stamps.

10. Spare entries for documenting additional/replacement “ad hoc” training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of the aircraft’s systems and will have developed an understanding of each student’s specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation’s bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

Superseded

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;
2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';
3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';
4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.
5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;
2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the

Superseded

platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,
2. Qualifications of the assessor and supervisors performing the OJT,
3. OJT logbook/worksheets format and content,
4. OJT compliance report format and content,
5. Production planning for the implementation of OJT (how to plan the tasks),
6. Supervision process and the assessment process, what to do if the assessment is not positive,
7. Safe release to service of the aircraft after OJT,
8. OJT Log Book final assessment process and associated forms:
    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.
    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

Superseded

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

SupersOded

8.3.4. Acceptance of Aircraft Component

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

Superseded

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

Superseded

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.
2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which "may" be considered as line maintenance. The word "may" is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on 'Privileges and limitations of line maintenance'. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 'Examples of maintenance activities considered to be base maintenance' of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

Superseded

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or

2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';

2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

Superseded

6. A “decision making process” (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of ‘decision making process’.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered “line maintenance” when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the “R1 check”, where the customer operator would request the performance of works in addition to the “R1” routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the “decision making process”.

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the “decision making process”, may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order

Superseded

to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been ‘signed off’ by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓	[redacted]	✓	[redacted]	✓	✓
Non Type Rated B1/B2 MAML Holder	✓	[redacted]	✓	[redacted]	✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS See note 2	✓	✓
A MAML Holder	✓	✓ Task Authorised See note 3	✓	[redacted]	✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓	[redacted]	✓	[redacted]	✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.

2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These “invigilators” do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation’s examination procedures with a specific emphasis on the exam’s integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual’s personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

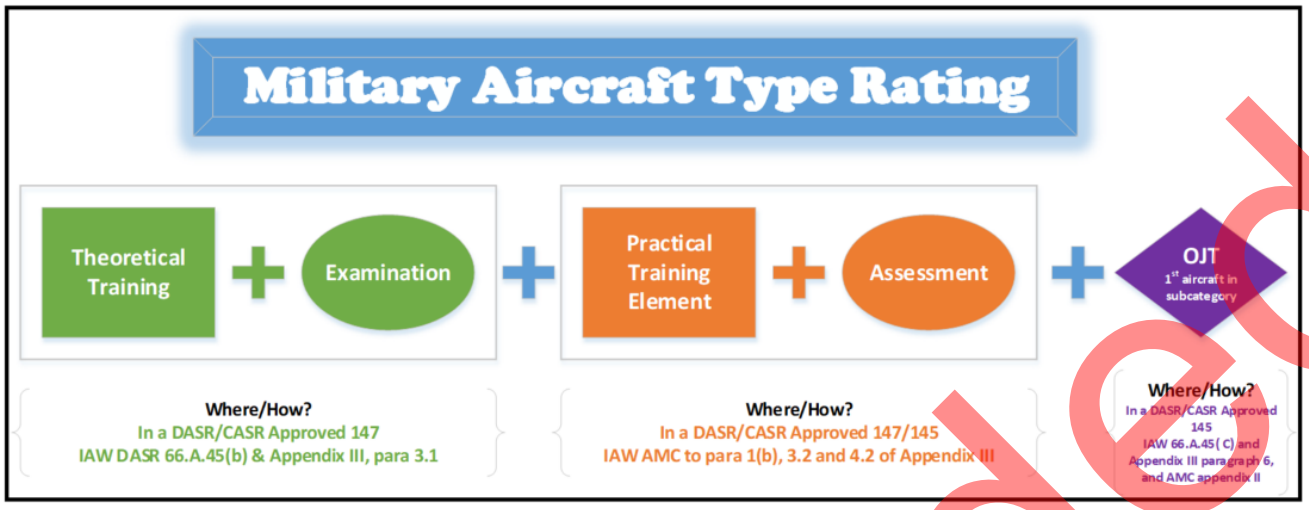


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requioirements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

Superseded

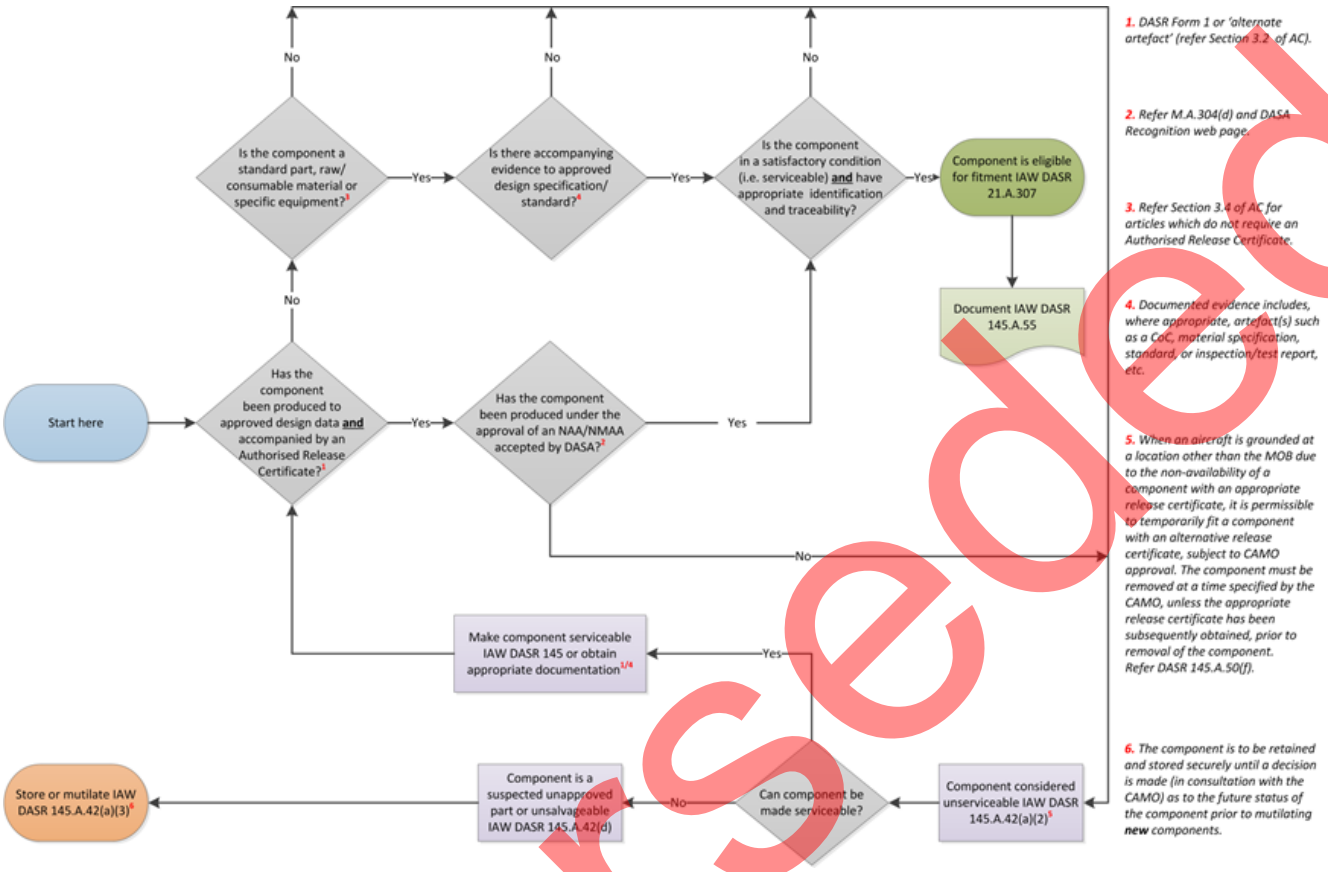
The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

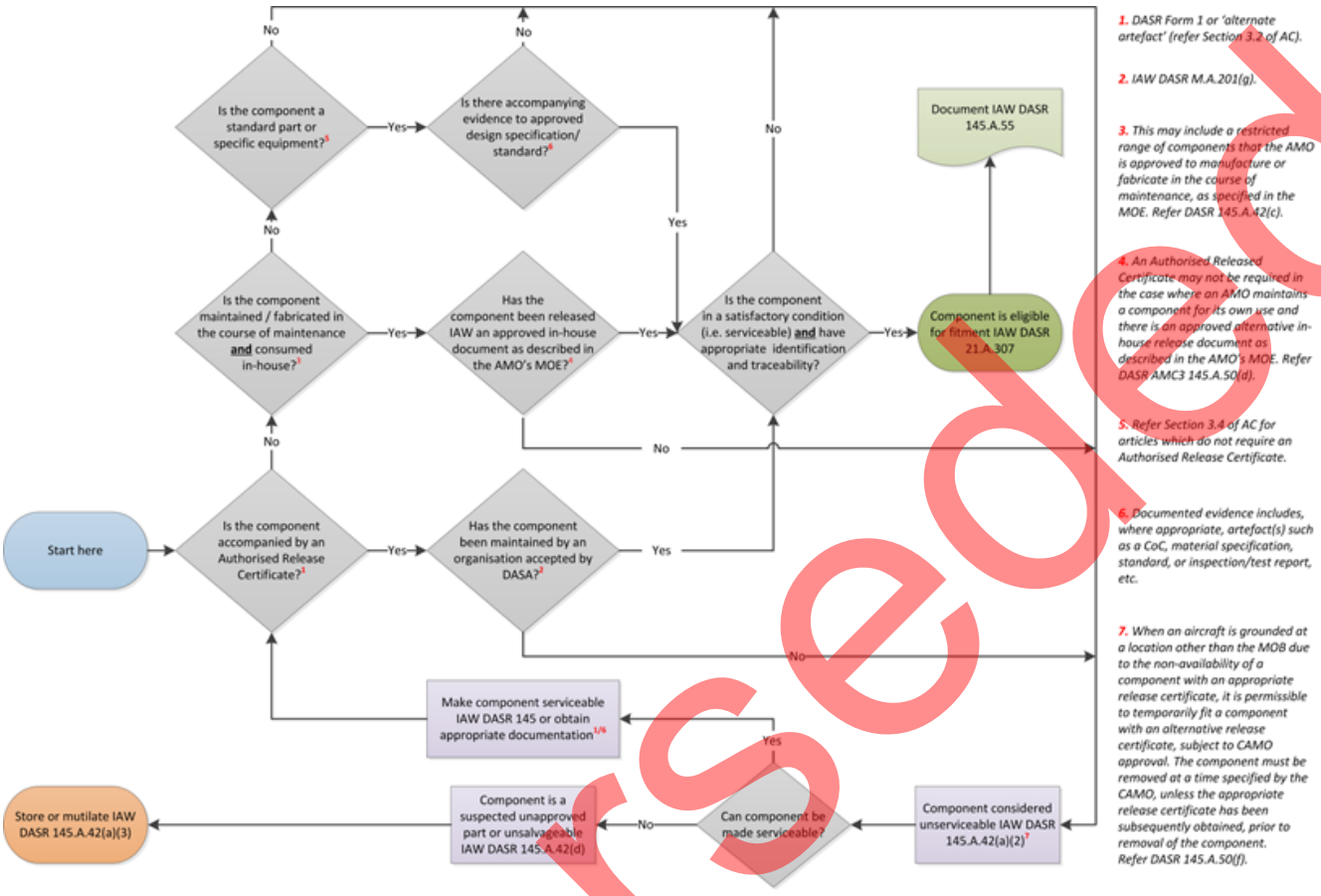
Superseded

Appendix 1 - Eligibility to Fit: New Components



Superseded

Appendix 2 - Eligibility to Fit: Used Components



Superseded

8.3.5 – Flexibility Provisions for Maintenance Organisations

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

Superseded

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or

Superseded

2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;

   i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.

   ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.

   iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.

2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and

3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

Superseded

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

8.2.4 Aircraft Maintenance Programme

Introduction

Superseded

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

Superseded

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

Superseded

1. maintenance records for maintenance carried out on the aircraft;

2. copies of authorised release certificates for product, parts or appliances; and

3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;

2. authorised release certificates for the parts; and

3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

Superseded

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

Superseded

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

Superseded

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA

Superseded

will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

1. Where the change requires an adjustment of the MMEL certification basis;
2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);
3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

Superseded

iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

Superseded

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21

2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;

2. Digital access to a copy of the proposed MEL;

3. All OIP created for use of the MEL; and

Superseded

4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;

Superseded

2. Placarding requirements as per the MEL;

3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;

4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;

5. Controlling categorised repair intervals; and

6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;

2. Identify the item with its MEL number; and

3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

Superseded

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

8.3 Maintenance Organisations

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

Superseded

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

Superseded

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.
2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which "may" be considered as line maintenance. The word "may" is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on 'Privileges and limitations of line maintenance'. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 'Examples of maintenance activities considered to be base maintenance' of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

Superseded

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or

2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under 'Examples of maintenance activities considered to be base maintenance';

2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

Superseded

6. A “decision making process” (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of ‘decision making process’.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered “line maintenance” when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the “R1 check”, where the customer operator would request the performance of works in addition to the “R1” routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the “decision making process”.

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the “decision making process”, may be for example:

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order

Superseded

to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

Superseded

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA
2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

Superseded

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired

Superseded

2. type or complexity of composite repair being conducted

3. specific nature of training undertaken

4. experience of personnel

5. supervision requirements

6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or

2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

Superseded

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.
2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.
3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).
2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.
3. Authorise technicians who have obtained CASA welding authority
4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and
2. Passed the welding testing set out in the CASA Welding Syllabus.

Superseded

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.
2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.
2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

Superseded

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;
2. Date such maintenance was completed;
3. Identity of the organisation and person issuing the CRS; and
4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.
2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).
3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and

Superseded

AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly, a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

Superseded

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

Superseded

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

8.3.3.26 IAW DASR 145.A.50(b) "A certificate of release to service shall be issued before flight at the completion of any maintenance". Subsequently, "any maintenance" can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the "any maintenance" interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

Superseded

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed ('sign off') and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks,

Superseded

to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Superseded

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓		✓		✓	✓
Non Type Rated B1/B2 MAML Holder	✓		✓		✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓		✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓		✓		✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Superseded

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

Superseded

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

When is an Authorised Release Certificate required?

Superseded

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be

Superseded

obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

Superseded

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.
2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but

Superseded

cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty

Superseded

exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4 Aircraft Maintenance Licencing

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release

Superseded

to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

Superseded

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

Superseded

ii. an addition of a category or subcategory to a MAML; or

iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

Superseded

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The "Basic Training Course" requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

Superseded

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

Superseded

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Superseded

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.

2. **Qualifications:** Details of the instructors, examiners, or assessor’s qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.

Superseded

3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.

4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.

5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.

6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.

7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.

8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.

9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.

10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

Superseded

2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.

3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.

4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.

2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.

3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.

4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.

Superseded

5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.

6. Appropriately experienced in the aircraft maintenance environment.

7. Able to demonstrate good knowledge, complimented with communication skills in the English language.

8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.

2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.

3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

Superseded

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These “invigilators” do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation’s examination procedures with a specific emphasis on the exam’s integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual’s personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

Superseded

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.

2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.

3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.

4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.

5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.

6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.

7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.

8. **Compliance:** The equipment must comply with all relevant regulations and standards.

9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.

10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

Superseded

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.
2. The simulator should be well-maintained and regularly calibrated.
3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.
2. The AMTO should have a system for monitoring and tracking student progress.
3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:
    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.
    ii. The training material must be easy to understand and follow.
    iii. The training material must include practical exercises that reinforce theoretical knowledge.
    iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
    v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

Superseded

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.

2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.

2. The training material must be consistent with the relevant regulations and standards.

3. The training material must be presented in a manner that is engaging and interesting for students.

4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination

Superseded

questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

Superseded

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

Superseded

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.
7. Some additional important points to consider when developing or maintaining student records include:
    i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.
    ii. The record must be accurate, complete, and up-to-date at all times.
    iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.
    iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Superseded

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Superseded

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

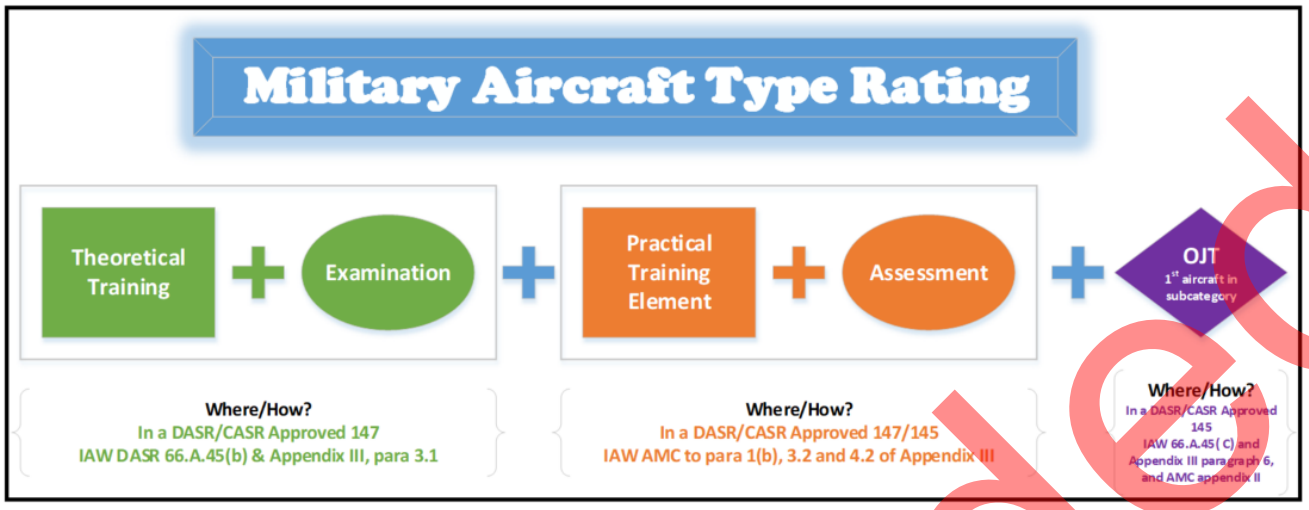


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA

Superseded

2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix

3. MATR Theory Element (Learning Management Plan)

4. MATR Practical Element (Practical Training Logbooks)

5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

Superseded

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and
2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;
2. the material and documentation provided to the student;
3. the qualification of instructors, examiners;
4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

Superseded

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

   i. the only reasonable method due to the complexity of the task, or

   ii. the only method available to enable familiarity with component location/ identification, or

   iii. the only method available to demonstrate the use of special equipment / tools.

Superseded

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.
2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).
3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.
4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

Superseded

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:

      – involve several comprehensive steps to perform
      – have multiple decision points in order to complete
      – may use specialised test equipment
      – often requires more than one person to perform
      – have direct impact on flight safety

   ii. Simple tasks may have the following attributes:

      – does not use specialised test equipment
      – can be completed by a single person
      – does not require any in-depth skill/knowledge
      – does not involve decision steps (no troubleshooting)
      – may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

Superseded

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requioerements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			

Superseded

99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor's details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.
6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).
7. Task type (R/I, LOC, SGH etc.).
8. Date of each individual task completion.
9. Instructor signatures or stamps.
10. Spare entries for documenting additional/replacement "ad hoc" training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of

Superseded

the aircraft's systems and will have developed an understanding of each student's specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation's bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

Superseded

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;

2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';

3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';

4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.

5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;

2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,

2. Qualifications of the assessor and supervisors performing the OJT,

3. OJT logbook/worksheets format and content,

4. OJT compliance report format and content,

Superseded

5. Production planning for the implementation of OJT (how to plan the tasks),

6. Supervision process and the assessment process, what to do if the assessment is not positive,

7. Safe release to service of the aircraft after OJT,

8. OJT Log Book final assessment process and associated forms:

    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.

    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

Superseded

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

Annex A - Contextualised guidance for seven-step risk management

(a) Risk management should be conducted IAW DASR SMS, supported by guidance within Advisory Circular 003/2008 *Risk Management in the DASP*. The following paragraphs provide general guidance on applying seven-step risk management associated with a DASR 145 MO authorising non-MAML staff as certifying or support staff. DASA does not seek to interfere in the decision-making that properly belongs to the Command Chain, or substitute its judgment for that of the Commander. The purpose of this guidance is to support clear articulation of the risk by MAOs to enable DASA to provide timely independent assurance over the decision making process. The approach described by this guidance maybe tailored relative to the available time to document the risk assessment rationale and specific context of the operational need.

(b) **Step 1 – Establish the context, including a robust operational need statement.** What is the resulting cost to capability (including capability preparedness) associated with the lack of sufficient MAML holders at the 145 MO? This should:

1. Explain the hazard context (airworthiness impact) as it relates to the issue of a CRS or acting as support staff (DASR 145.A.50, 145.A.35, 145.A.30 & 66.A.20).

(1) Consequence (not likelihood) associated with granting certification authorisation to personnel not holding an appropriate MAML (eg the granting of unrestricted CRS authorisation equivalent to privileges of a Category B MAML would involve complex flight-critical maintenance and the hazard level would need to reflect this).

b. Detail insufficient numbers of certifying staff.

(1) Asset vs requirement (rank independent) – requirement needs to be contextualised (e.g. the MAO needs to be able to maintain five separate deployed locations but current operations/tempo only allow three).

(2) Numbers should not include total maintenance staff – focus should be on certifying staff only and be expressed in absolute quantities rather than percentages.

(3) Can include information on number of category B MAML holders with MAML E62 exclusion who can only certify maintenance they have personally performed.

(4) Can include information on MAML holders who are not able to certify for maintenance due to essential command and management duties.

c. Describe what capability risk would be realised if the DASA 145 MO did not authorise non-MAML staff as certifying or support staff (the operational need).

(1) Can include immediate effect on operations or impact on Raise, Train, Sustain activities that would lead to a future degradation of capability.

(2) Be as specific as possible but can include commentary on generalised capability deficiencies that would likely occur such as failure to meet preparedness objectives (DASA assurance will focus the documented evidence defining a clear and unambiguous capability need not the validity of the capability need).

Superseded

d. Describe how the DASR non-compliance is being remediated.

(1) For short-term exchanges / secondments of foreign-trained personnel, obtaining a MAML may be grossly disproportionate. In these cases, cancelling risk-based authorisations as soon as they are no longer needed may be a reasonable remediation action. By contrast, gaining a MAML is likely to be a reasonable action for a permanent lateral recruit.

3. **Step 2 – Be reasonably informed.** Through understanding the risk controls inherent in a holding a MAML (e.g. categorisation, exclusions and type ratings). This should address:

a. What is the Qualification, Training and Experience (QTE) difference from DASR 66 requirements?

(1) Needs to be based on individual documented QTE and could include relevant prior authorisations.

(2) Should not just look at collective Initial Employment Training (IET) comparisons but may contain this analysis.

(3) Can include an assessment of experience against specific basic knowledge elements (e.g. specific aircraft systems).

b. Does each individual have a military aircraft type rating or equivalent?

(1) If not, describe the risk associated with this person certifying maintenance in a DASA 145 MO.

(2) Could include information related to experience working on relevant or similar types.

c. Has each individual held a certification authorisation within an EMAR 145 organisation?

(1) If not, describe the risk associated with this person certifying maintenance in a DASA 145 MO.

(2) If so, what was the scope of this authorisation (e.g. currency as well as trade limitations and any restrictions) and the risk associated with this person certifying maintenance in a DASA 145 MO.

d. Has each individual completed unit operational induction, including instruction/ training specific to the MOE, maintenance recording/management systems, and all relevant unit instructions/procedures?

(1) If not, describe the risk associated with this person certifying maintenance in a DASA 145 MO.

4. **Step 3 – Eliminate risk SFARP.** This should address:

a. Why is it grossly disproportionate not to restrict capability (e.g. reduce ROE or restrict number of operating locations)?

b. Why is it grossly disproportionate not to limit authorisations to Task Sign Off?

(1) For example why is it unreasonable for foreign-trained personnel to perform but not certify maintenance in terms of capability impact. This includes

Superseded

authorising personnel as supervisors (not certifying staff) as detailed in AMC to DASR 145.A.65(b)3.

c. Where existing MAML holders are not available due to command and management duties, is it possible to have others backfill command and management duties or leave command and management duties unfulfilled?

5. **Step 4 – Minimise risk SFARP.** This should:

a. Identify any area of remaining risk.

b. Describe how controls will be implemented to minimise risk including: type training, locally developed training, limiting the scope of certification authorisation, and completion of unit operational induction. If controls are not implemented, describe why those controls are grossly disproportionate.

c. Will non-MAML staff as certifying or support staff only be used in the absence of certifying staff with a MAML? If not, why it is grossly disproportionate to do this?

d. Describe how the scope of authorisation will be limited to particular systems or complexity of work to minimise risk.

e. Describe any additional controls/restrictions that can reasonably be placed on non-MAML staff as certifying or support staff to minimise risk SFARP.

6. **Step 5 – Characterise risk.** This is to be done in accordance with the MAO SMS.

7. **Step 6 – Decision to Proceed.** Describe why the residual risk is reasonable to retain in the context of the capability impact that would occur if the risk were not retained.

8. **Step 7 – Review risk.** This should:

a. Describe risk review process

b. Include a plan, including a timeline, to remediate non-compliance with DASR.

Superseded

8.4. Aircraft Maintenance Licencing

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

Superseded

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

Superseded

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or
2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;
    i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.
    ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.
    iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and
3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

Superseded

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

Superseded

8.2.4 Aircraft Maintenance Programme

Introduction

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

Superseded

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

Superseded

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

1. maintenance records for maintenance carried out on the aircraft;
2. copies of authorised release certificates for product, parts or appliances; and
3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;
2. authorised release certificates for the parts; and
3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

Superseded

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

Superseded

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

Superseded

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has

Superseded

been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

Superseded

1. Where the change requires an adjustment of the MMEL certification basis;

2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);

3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:

    i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;

    ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

    iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

    i. The change is only to the applicability of an item for configuration management purposes;

    ii. The change is the removal of an item;

    iii. The change is an increase in the number of items required for dispatch; and

    iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

    i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

    ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL

Superseded

items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21
2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

Superseded

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;
2. Digital access to a copy of the proposed MEL;
3. All OIP created for use of the MEL; and
4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another

Superseded

document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;
2. Placarding requirements as per the MEL;
3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;
4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;
5. Controlling categorised repair intervals; and
6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;
2. Identify the item with its MEL number; and
3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and

Superseded

are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

Superseded

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

Superseded

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.

2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

Superseded

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which “may” be considered as line maintenance. The word “may” is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on ‘Privileges and limitations of line maintenance’. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under ‘Examples of maintenance activities considered to be base maintenance’;
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

Superseded

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

6. A "decision making process" (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of 'decision making process'.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered "line maintenance" when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the "R1 check", where the customer operator would request the performance of works in addition to the "R1" routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the "decision making process".

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 'Examples of maintenance activities considered to be base maintenance' having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the "decision making process", may be for example:

Superseded

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

Superseded

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA

2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which

Superseded

supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA

Superseded

recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired
2. type or complexity of composite repair being conducted
3. specific nature of training undertaken
4. experience of personnel
5. supervision requirements
6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or
2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

Superseded

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.

2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.

3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).

2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and

Superseded

implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.

3. Authorise technicians who have obtained CASA welding authority

4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and

2. Passed the welding testing set out in the CASA Welding Syllabus.

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.

2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

Superseded

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.

2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;

2. Date such maintenance was completed;

3. Identity of the organisation and person issuing the CRS; and

4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.

2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).

Superseded

3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly,

Superseded

a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

Superseded

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

Superseded

8.3.3.26 IAW DASR 145.A.50(b) “A certificate of release to service shall be issued before flight at the completion of any maintenance”. Subsequently, “any maintenance” can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the “any maintenance” interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed

Superseded

by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks, to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

Superseded

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓		✓		✓	✓
Non Type Rated B1/B2 MAML Holder	✓		✓		✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓		✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓		✓		✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

Superseded

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Superseded

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

Superseded

When is an Authorised Release Certificate required?

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

Superseded

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified

Superseded

by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.

Superseded

2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the

Superseded

procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

Superseded

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

Superseded

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

Superseded

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

   ii. an addition of a category or subcategory to a MAML; or

   iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

Superseded

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The “Basic Training Course” requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

Superseded

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Superseded

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

Superseded

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for

Superseded

different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor's qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.
3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.
4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.
5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.
6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.
7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.
8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.
9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.
10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and

Superseded

skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.
3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.
4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.
5. Appropriately experienced in the aircraft maintenance environment.
6. Able to demonstrate good knowledge, complimented with communication skills in the English language.
7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).
9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and

Superseded

experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.
2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.
3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.
4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.
5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.
6. Appropriately experienced in the aircraft maintenance environment.
7. Able to demonstrate good knowledge, complimented with communication skills in the English language.
8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).
10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.
3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

Superseded

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These "invigilators" do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation's examination procedures with a specific emphasis on the exam's integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual's personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be

Superseded

filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.
2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.
3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.
4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.
5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.
6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.
7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.
8. **Compliance:** The equipment must comply with all relevant regulations and standards.
9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.
10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

Superseded

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.

2. The simulator should be well-maintained and regularly calibrated.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.

2. The AMTO should have a system for monitoring and tracking student progress.

3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:

    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.

Superseded

ii. The training material must be easy to understand and follow.

iii. The training material must include practical exercises that reinforce theoretical knowledge.

iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.
2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.
2. The training material must be consistent with the relevant regulations and standards.
3. The training material must be presented in a manner that is engaging and interesting for students.
4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

Superseded

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards

Superseded

including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Superseded

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field

Superseded

of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.

7. Some additional important points to consider when developing or maintaining student records include:

   i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.

   ii. The record must be accurate, complete, and up-to-date at all times.

   iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.

   iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

Superseded

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

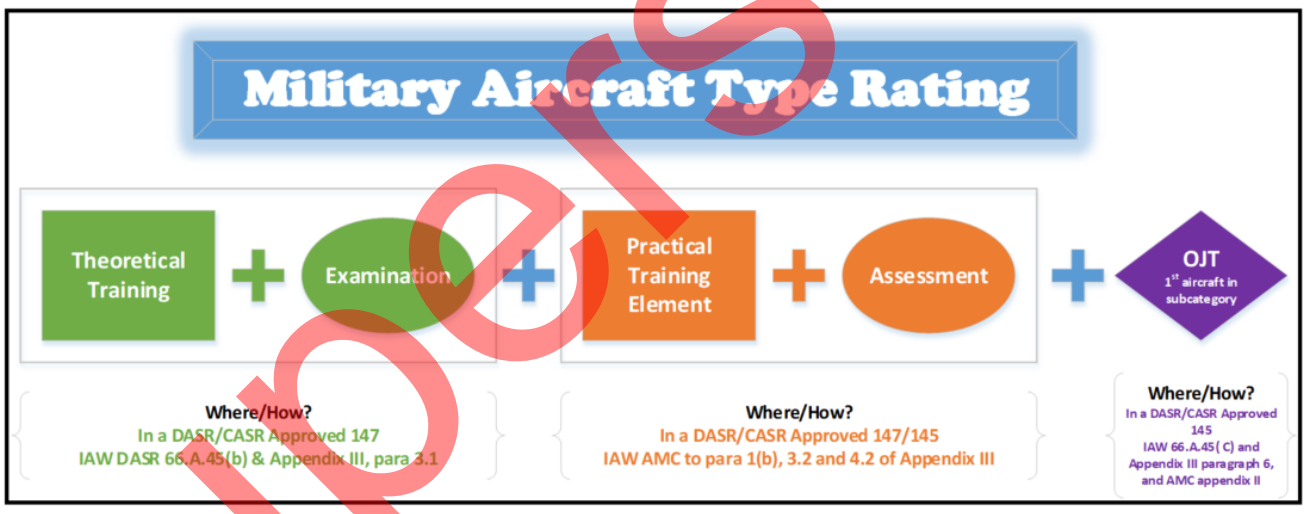


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

Superseded

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA
2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix
3. MATR Theory Element (Learning Management Plan)
4. MATR Practical Element (Practical Training Logbooks)
5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

Superseded

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and

2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;

2. the material and documentation provided to the student;

3. the qualification of instructors, examiners;

Superseded

4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

Superseded

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

    i. the only reasonable method due to the complexity of the task, or

    ii. the only method available to enable familiarity with component location/ identification, or

    iii. the only method available to demonstrate the use of special equipment / tools.

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.

2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).

3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.

4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

Superseded

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:
   - involve several comprehensive steps to perform
   - have multiple decision points in order to complete
   - may use specialised test equipment
   - often requires more than one person to perform
   - have direct impact on flight safety

   ii. Simple tasks may have the following attributes:
   - does not use specialised test equipment
   - can be completed by a single person
   - does not require any in-depth skill/knowledge
   - does not involve decision steps (no troubleshooting)
   - may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a

Superseded

reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Superseded

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requiorements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			
99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor’s details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.

Superseded

6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).

7. Task type (R/I, LOC, SGH etc.).

8. Date of each individual task completion.

9. Instructor signatures or stamps.

10. Spare entries for documenting additional/replacement “ad hoc” training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of the aircraft’s systems and will have developed an understanding of each student’s specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation’s bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

Superseded

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;
2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';
3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';
4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.
5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;
2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the

Superseded

platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,
2. Qualifications of the assessor and supervisors performing the OJT,
3. OJT logbook/worksheets format and content,
4. OJT compliance report format and content,
5. Production planning for the implementation of OJT (how to plan the tasks),
6. Supervision process and the assessment process, what to do if the assessment is not positive,
7. Safe release to service of the aircraft after OJT,
8. OJT Log Book final assessment process and associated forms:
    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.
    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

Superseded

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria.	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

8.5. Aircraft Maintenance Training Organisations

8.1 Introduction

8.1.1 This chapter is intended to provide additional guidance on continuing airworthiness regulations to supplement the DASR (DASP Manual Volume 2). This chapter provides additional guidance on aviation safety outcomes that may incorporate compliance with multiple regulations.

8.1.2 The sub-chapters within this chapter are associated with Continuing Airworthiness Management, Maintenance Organisations, Maintenance Licencing and Maintenance Training Organisations. These sub-chapters will also reference, where appropriate, other chapters and sub-chapters within DASP Manual Volume 3 for common aviation safety elements (e.g. occurrence reporting). Other DASP content relevant to continuing airworthiness will also be referenced where possible.

8.1.3 This chapter will contain information that has historically been communicated via Factsheets, Advisory Circulars (ACs) and Frequently Asked Questions (FAQs). In some instances, these historical methods of communicating guidance will remain – particularly for guidance that has a limited period of applicability or when inclusion in DASP Manual Volume 3 is not an intuitive way to communicate specific information. Use of separate Factsheets, enduring ACs and FAQs will be the exception, with the intent that DASP Manual Volume 3 to be the central repository for continuing airworthiness guidance outside of DASR.

8.1.4 The content in this chapter will evolve as the need for additional guidance is identified, with new content and/or new sub-chapters being added over time to support optimal capability outcomes. Accordingly, DASA welcomes any suggestions for future continuing airworthiness guidance noting that awareness training is available via the DASA website.

8.2 Continuing Airworthiness

8.2.1 Continuing Airworthiness Management

Introduction

8.2.1.1 The following chapters provide additional guidance on DASR M regulations – they cover activities such as Deferment of Defects, Acceptance of Components and Aircraft Maintenance Programs.

8.2.1.2 The Continuing Airworthiness Management Organisation (CAMO) should be principally located within the aircraft's operational organisation, although the majority of DASR M functions may be outsourced/assigned to other organisations or service providers.

8.2.1.3 Continuing airworthiness management regulation is summarised in the requirements of DASR M.A.101 as 'This [DASR M] establishes the measures to be taken to ensure that [continuing] airworthiness is maintained, including maintenance. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management'.

Superseded

8.2.1.4 Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including other chapters of DASP Manual Volume 3.

DASR M - Continuing Airworthiness Management

8.2.1.5 CAMOs are required to ensure all their maintenance service providers have access to ICA (and ICA supplements) to the extent necessary for the scope of maintenance services being provided. The scope of continuing airworthiness management activities should be in accordance with the Operating Organisation's policy and procedures defined in the Continuing Airworthiness Management Exposition (CAME). The CAME is approved by DASA and sets out the procedures, means and methods of how the CAMO intends to comply with the requirements of DASR M. A list of key management positions will be listed in the CAME. The CAME also includes all functions and privileges required to ensure the aircraft are maintained in an airworthy condition, the issue of Military Airworthiness Review Certificates (MARC), and/or changes to the Aircraft Maintenance Programme (AMP). Additional Information on gaining DASA approval to become a CAMO can be found in Chapter 5.3 Annex H –CAMO.

8.2.1.6 CAMOs are responsible for ensuring that maintenance of aircraft is performed by an organisation approved by DASA or another organisation acceptable to DASA. A maintenance organisation is acceptable to DASA if its services are accessed in accordance with the terms of a recognition certificate.

8.2.1.7 Recognition certificates may enable a CAMO to fulfil the aircraft Certificate of Release to Service (CRS) requirement using a maintenance organisation not approved by DASA. These provisions are applicable where DASA has recognised another airworthiness authority in the area of aircraft maintenance. Chapter 6.5, Recognition of Other Aviation Safety Authorities, provides further guidance on the application of recognition.

8.2.1.8 Recognised systems may include an artefact equivalent to an aircraft CRS; however, maintenance organisations may be prevented from issuing a native artefact against a Defence-registered aircraft by legal or policy constraints. Instead, the CAMO should request an artefact that meets the requirements set out in DASR M.A.801.

Airworthiness Directives

8.2.1.9 Airworthiness Directives (ADs) mandate actions to be performed on an aircraft to restore an acceptable level of safety. Furthermore it is mandatory that CAMOs comply with any AD applicable to its aircraft, guidance on Airworthiness Directives can be found in Section 7.4.3 – Airworthiness Directives.

Data for modifications and repairs

8.2.1.10 DASR M.A.304(d) provides for the consumption of data already approved within a recognised airworthiness framework. A CAMO may consume data for repairs and 'minor' modifications when the data is produced by an organisation accepted by DASA. An organisation is accepted by DASA if its design products are being accessed in accordance with the terms of a recognition certificate and a suitable procedure. Direct consumption of data is subject to a suitability assessment (see AMC and GM to DASR M.A.304(d)) in accordance with the scope, conditions and caveats of the relevant recognition certificate. The suitability assessment will consider, among other things, the effect of the design classification and its compatibility with the ADF Configuration, Role and Environment (CRE). Additional guidance can be found in Section 7.2.4 – Repair Designs.

Superseded

Aircraft continuing airworthiness record system

8.2.1.11 An Authorised Release Certificate is necessary for the release to service of either new or used components. It is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained in accordance with the approved design data/standard, modification standard or applicable maintenance data. Additional guidance on tracking status of service life-limited components and other usage data for aircraft structures and propulsion systems can be found in Chapter 6.6.4.

Airworthiness review staff

8.2.1.12 Airworthiness review entails a full documented review of the aircraft records and a physical survey of the aircraft. Airworthiness Review Staff are authorised by the CAMO and accepted by DASA to perform Airworthiness Reviews on aircraft which are listed on the CAMO approval certificate.

8.2.2 Operation of an Aircraft with a known Defect

Introduction

8.2.2.1 This chapter provides direction on what constitutes a Defect, how Defence aircraft can operate with a known defect and who can authorise an aircraft to operate with a known Defect.

Background

8.2.2.2 To meet the demands of operational availability, where it is not reasonably practicable to rectify defects, deferment of defects may be considered. The regulations provide Operators the flexibility to defer defects once assessed. The mechanism used should ensure due consideration is given to the impact to capability and safety. Organisations should ultimately prioritise, to the maximum practicable extent, rectifying defects prior to operating an aircraft.

What Constitutes a Defects?

8.2.2.3 A defect is an imperfection that impairs the structure, composition, or system of a product part or appliance or exceedance of operational limitations in the Instructions for Continuing Airworthiness (ICA).

Defect Management

8.2.2.4 Defects can be identified during operations or during the conduct of maintenance. However, regardless of how a defect is identified the CAMO must ensure that all defects discovered or reported are managed appropriately until rectified by a DASR 145 AMO. Annex A outlines the process for defect deferment.

8.2.2.5 Where a defect cannot be rectified before the next flight due to operational requirements, lack of spares or unavailability of maintenance services the CAMO may IAW a DASA approved procedure described at AMC M.A.301(a)(2) choose to defer the defect until it is reasonably practicable to rectify.

Deferment Options

Superseded

8.2.2.6 Deferment of MEL/CDL allowable defects can be accomplished by a DASR 145 AMO or Operator in compliance with the relevant aircraft technical log procedures. MEL/CDL allowable defects are subject to acceptance by the aircraft commander.

8.2.2.7 Where a MEL/CDL does not exist and there is credible data available, IAW GM M.A.301(a)(2), a determination can be made as to the impact to airworthiness for the aircraft. AMC M.A.301(a)(2) allows the CAMO to defer such a defect IAW a procedure documented in the CAME and approved by the MAA.

8.2.2.8 The procedure must ensure:

1. Airworthiness[1] is maintained, using only credible data, in the defect deferment determination;
    i. Within the context of Airworthiness, 'without significant hazard' is considered to mean that no credible hazard exists that would impact airworthiness.
    ii. A non-credible hazard is a defect that is considered so implausible as to its affect on Airworthiness that it does not need to be accounted for. To manifest into an Issue would require a series of exceptional failures or conditions to happen simultaneously making it impractical to consider for a given operational period.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations on the same aircraft are considered as to the impact on airworthiness;
3. deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions as described at M.A.306(a);
4. any conditions, limitations or restrictions are clearly identified and visible to aircrew;
5. monitoring on a continuous basis, defects occurring in flight and defects found during maintenance, highlighting any defects that are repetitive;
    i. Where repetitive defects are identified the CAMO may develop a list of pre-assessed defects that have been documented with consideration to the requirements of the DASA approved procedure. However, the accountability remains on the authorised person approving the defect to ensure the context in which the credible data used to assess the defect and the aircraft condition remains appropriate for the specific pre-assessed defect application.
    ii. In each instance of a pre-assessed defect MTCH engagement should be sought. This will allow consideration of inclusion of the repetitive defect in the relevant platform MEL/CDL or review of existing ICA for possible improvements.
6. Persons who determine whether a defect affects Airworthiness are competent and authorised to defer defects.

8.2.2.9 The procedure should also address how ongoing analysis of the effectiveness of the CAMO's defect control system is carried out.

Superseded

8.2.2.10 If the defect does not allow the aircraft to remain airworthy the Operator may seek to use the following for ongoing operations:

1. Military Permit to Fly, or
2. Command Clearance.

8.2.2.11 Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects to another Organisation or the DASR 145 has identified a defect in the course of maintenance that entity may defer that defect IAW M.A.306 (a) subject the following:

1. The defect has been assessed using maintenance data defined in DASR 145.A.45, by appropriately authorised certifying staff IAW DASR 145.A.48 (c), as not a Hazard to flight safety;
    i. Authorised certifying staff may only use maintenance data, as defined through DASR 145.A.45 in making an Endangerment to Flight Safety Assessment (EFSA). The authorised certifying staff may only consider the consequence of failure to determine if a defect hazards flight safety.
    ii. If available maintenance data is insufficient to enable a data driven assessment to identify if the defect either does or does not hazard flight safety the DASR 145 should seek additional maintenance data from the CAMO. If further maintenance data is not available or a definitive assessment cannot be made then the defect is to be processed as if it does hazard flight safety.
    iii. Where a defect does hazard flight safety this does not preclude the CAMO from operating the aircraft. However, the CAMO must establish, for the context of the intended aircraft operation, through the procedure described under 8.2.2.1 that the aircraft remains airworthy with the defect deferred.
2. potential hazards arising from the cumulative effect of any combination of defects and restrictions/limitations has been considered as to the impact on the Flight Safety Assessment; and
3. CAMO has been notified as described under DASR 145.A.48 (c) of the defect and agrees to its deferment.

8.2.2.12 Where a CAMO does not agree to the deferment of a defect they are to task a DASR 145 MO as described under DASR M.A.201(g) to rectify the defect.

Annex:

A. Deferred Defect Management Process – Flowchart

Superseded

8.2.3 Alternate Artefacts

Introduction

8.2.3.1 This chapter provides additional guidance on acceptance of components – specifically the acceptance of alternate documentation, where components are not supplied with a DASA Form 1 or equivalent recognised document.

8.2.3.2 The introduction of DASRs brought with it a change to the information requirements accompanying components to be consumed on ADF aircraft. DASRs require that components be supplied with a DASA Form 1, or recognised equivalent, that declares the airworthiness of a component.

8.2.3.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[1]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

8.2.3.4 Although alternate artefacts are consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for and manage the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.3.4 – Acceptance of Aircraft Components

What constitutes an 'alternate artefact' accepted by DASA?

8.2.3.5 DASA may agree that an AMO may consume an alternate artefact other than a DASA Form 1, or recognised equivalent Authorised Release Certificate, that is produced by an organisation accepted by DASA. A CAMO can seek approval of an Alternate Artefact from DASA using DASR Form 155 – Application for Acceptance of Alternate Artefact. AMC to DASR M.A.201(g) and M.A.802(c) provide detail on when an alternate artefact would be acceptable. Chapter 8.3.4 – Acceptance of Aircraft Components provides further detail.

Consumption of United States (US) Department of Defence (DoD) products

8.2.3.6 There has been confusion with consumption of US DoD supplied products where associated documentation, such as DD Form 250, does not meet the requirements of a DASA Form 1 or recognised equivalent. The DASR provide a path for the regulated community to accommodate the consumption of products where the product supplied does not meet the requirements of a DASA Form 1. This is:

1. AMOs and CAMOs comply with DASR 145.A.42 and DASR M.A.201 (g) (e.g. via direct recognition or DASR Form 155 Application for Acceptance of Alternate Artefact).
2. Where (a) above is not reasonably practicable, CAMOs can develop a procedure within their exposition to demonstrate to DASA how these products can be consumed whilst maintaining an equivalent level of protection. DASA will then assess this procedure against the requirements of DASR GR.80(b), and if appropriate, approve the procedure for use.
3. Where (a) is not reasonably practicable, and an equivalent level of protection cannot be ensured (b), CAMOs can develop a procedure within their exposition to demonstrate to DASA how these components will be consumed; accompanied by a demonstration that the resultant risks are appropriately managed by the applicable MAO. DASA will then assess this procedure against the requirements of DASR GR.80(c), and if appropriate, allow the use of the procedure.

Superseded

8.2.4 Aircraft Maintenance Programme

Introduction

8.2.4.1 This chapter provides guidance on Aircraft Maintenance Programmes (AMPs) and Reliability Programmes (RPs).

Aircraft Maintenance Programme (AMP)

8.2.4.2 DASR M.A.302(a) requires that maintenance of each aircraft shall be organised in accordance with an AMP. The AMP encompasses the actual maintenance programme in its entirety. An AMP provides the scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices that are applied to the maintenance of an aircraft. The RP, which continually reviews the applicability of the AMP to the aircraft and operator, is also considered a part of the AMP.

8.2.4.3 Guidance on the application and approval of AMPs can be found in Chapter 5.3 Annex T – AMP with additional guidance in Chapter 6.6.4 (particularly guidance on how integrity programs can support the development and ongoing validity of the AMP).

Extension of promulgated maintenance interval

8.2.4.4 If a contracted/tasked maintenance organisation advises the CAMO that the maintenance cannot be carried out by the required timeframe and requests an extension of the promulgated maintenance interval, the CAMO when processing the request for an extension, has the following options available:

1. where the packaged/promulgated interval is less than the engineering justified interval, extend the interval up to a maximum of the engineering interval;
2. extend the task interval using the CAMO's indirect approval procedure, if suitably privileged, either once-off or permanently,
3. request DASR 21J design support for the requested interval extension; or
4. utilise the Command Clearance process to operate the aircraft IAW DASR M.A.301(a)(2) .

8.2.4.5 **Extending the Packaged Interval.** Interval flexibility may exist between a maintenance task's packaged/promulgated interval and its engineering/design interval in the AMP. The task may be packaged at a lesser interval maintenance efficiency due to tasks required in the same area or aligning maintenance to be conducted in blocks. If this is the case, and provided the CAMO has the underlying analysis that identifies the engineering interval and the reasons why the task was packaged at a lesser interval, the CAMO may authorise an extension to the packaged interval up to a maximum of the recorded engineering interval.

8.2.4.6 **Extend the AMP Task Interval.** If the AMP task interval has been reached, the CAMO may have sufficient data to extend the AMP task interval either once off, for a defined period, or permanently. To amend the AMP the CAMO must have the privilege from the MAA and sufficient scope as agreed in the indirect approval procedure. Note: where a task's interval has been extended permanently, the task may still be packaged as desired (not exceeding the extended interval).

Superseded

8.2.4.7 **Request DASR 21J Design Support.** If the two options at para 8.2.4.4a and b above are not applicable, the CAMO may request DASR 21J design support to either extend the interval once off, for a defined period, or permanently.

8.2.4.8 **Utilise the Command Clearance process.** DASR M.A.301(a)(2) contains provisions for the Operating Organisation to deviate from the Initial / Continued / Continuing regulations.

8.2.4.9 For servicings with multiple tasks, the decision on extending the interval and the method used will be dependent on the individual circumstances of each task within the servicing. A combination of paragraphs 8.2.4.4a to d may be necessary.

8.2.4.10 Note, that extending a maintenance task beyond its promulgated interval may reduce the preventive effect of the task by increasing the risk of exposure to the failure consequences of the failure mode being addressed. Extension of maintenance could adversely affect the operational capability and/or safety of the aircraft. Also, the percentage by which the interval is extended does not universally reflect the increase in risk in exposure to the failure consequences of the failure mode(s) the task is addressing. The increase in risk with the extension of a task's interval needs to be assessed individually based on the underlying Reliability Centered Maintenance (RCM) analysis that justified the existing interval and the context in which the interval extension is being asked.

8.2.5 Airworthiness Review

Introduction

8.2.5.1 This chapter provides guidance on Airworthiness Reviews (AWRs) to supplement the AMC M.A.710(a)

Airworthiness Review

8.2.5.2 During airworthiness review of an aircraft, the airworthiness review staff must examine continuing airworthiness records for the aircraft and perform a physical survey of the aircraft to determine whether the aircraft continues to comply with the airworthiness requirements as set out in DASR M.A.710(a) and DASR M.A710(b).

8.2.5.3 For many aircraft, the quantity of records that must be examined and the level of examination required will be extensive. It is anticipated that the airworthiness review staff will be assisted by other employees of the CAMO and/or appropriately experienced personnel in this regard. This does not prevent other personnel from assisting to retrieve records, compile information and prepare reports etc. for the examination by the airworthiness review staff. However, it is up to the airworthiness review staff carrying out the airworthiness review to be satisfied with the source, authenticity and accuracy of the information made available to them.

8.2.5.4 The airworthiness review staff are expected to have a level of understanding of the continuing airworthiness records system for the aircraft that allows them to carry out the review without error.

8.2.5.5 **Rectification of defects.** AWR staff shall examine the aircraft's continuing airworthiness record system to determine if any defects need rectification before flight. Defects that require rectification before flight must be rectified before the issue of an airworthiness review certificate.

Superseded

8.2.5.6 **Deferred defects.** AWR staff shall examine the existing deferred defects as recorded in the aircraft's continuing airworthiness record system to determine whether deferral of rectification has been carried out.

8.2.5.7 **Airworthiness Directives (AD).** AWR staff shall examine the records containing compliance with ADs to determine whether actions required by each AD that applies to the aircraft, product, parts or appliances fitted to the aircraft have been complied with. An examination of documents that substantiate each AD has been complied with should verify that information kept is correct. Examples of documents that may substantiate an AD has been complied with, includes:

1. maintenance records for maintenance carried out on the aircraft;
2. copies of authorised release certificates for product, parts or appliances; and
3. log books for products such as engines and propellers.

8.2.5.8 For a product, parts or appliances, the document that substantiates compliance with the AD should relate to the product that is identified in the records by part number and serial number.

8.2.5.9 Where an AD requires compliance with requirements contained in another document such as a service bulletin (SB), a record of compliance with the service bulletin would be acceptable as evidence of compliance with the AD.

8.2.5.10 **Modifications.** AWR staff shall examine the records of modifications kept to determine whether there is a DASR 21 (see DASR M.A.304—Data for modifications and repairs) approval for each design of the modification. For the purpose of this paragraph, a modification includes a repair that involves change to the approved design of the aircraft.

8.2.5.11 **Life Limited Components**. AWR staff should examine the records of life-limited components kept to determine whether part number, serial number, has correctly identified each life-limited part and whether the life limit has been exceeded for any of the parts.

8.2.5.12 In addition, documents that have been used to substantiate remaining life at installation shall be checked to verify that information kept for life-limited components is correct. Examples of such substantiating documents include:

1. maintenance records for installation of the parts;
2. authorised release certificates for the parts; and
3. life limited component history/log card.

8.2.5.13 **Weight and Balance.** AWR staff shall examine the record of the aircraft's weight and balance kept to determine if it is consistent with all the changes made to the weight and balance since the last weighing of the aircraft. All changes made to the weight and balance should be substantiated by documents such as a modification approval and an equipment list for the aircraft.

8.2.5.14 **Aircraft Configuration.** AWR staff shall examine the aircraft's continuing airworthiness records to determine whether the aircraft's configuration as recorded complies with the specification in the military type certificate data sheet (TCDS) for the aircraft, engine and propeller.

8.2.5.15 **Findings.** All findings discovered during an airworthiness review should be documented and managed in accordance with the CAMO's quality management system / safety management system, consistent with requirements of M.A.905.

Superseded

8.2.6 Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL)

Introduction

8.2.6.1 This chapter provides guidance on Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) development and approval.

Background

8.2.6.2 Under certain conditions the required level of safety can be maintained with specific aircraft components being unserviceable, for a limited period of time, until repairs can be made. Many aircraft also have equipment installed that is not required for safe operation under certain operating conditions (e.g. aircraft with multiple VHF radios can operate with single radio if operations do not require the use of the systems associated). Equipment, such as entertainment systems, galley equipment, mission equipment or systems, may have no impact of flight safety.

8.2.6.3 An MMEL is a document created specifically to permit the continued operation of an aircraft type with unserviceable equipment, based on the aircraft type certification. An MEL consists of an approved list of the specific unserviceable equipment for a particular aircraft by serial and registration mark, based on the MMEL and the Operator's Configuration, Role and operating Environment (CRE).

8.2.6.4 An MEL can be used as the first step in a defect management process in accordance with procedures developed by the CAMO and approved by the DASA to meet the requirements of DASR M.A.301 (a) 2, for the deferral of defects.

8.2.6.5 Useful background information when developing a MEL can be found in:

1. CASA CAAP 37-1(5) - Minimum Equipment Lists (MEL)
2. EASA Rules for Master Minimum Equipment List (CS-MMEL)

DASA Regulatory Basis

8.2.6.6 DASR GM 21.A.15(a) - Application for a Military Type Certificate may include the MMEL as Operational Suitability Data (OSD) that may be approved as part of Type Certification and form part of the Military Type Certificate (MTC) .

8.2.6.7 DASR M.A.301 Continuing airworthiness tasks, refers to MEL and Configuration Deviation List (CDL) for use in the deferment of defect rectification.

8.2.6.8 DASR AO Gen.05 Management of OIP, ORO.05 Conduct of Flying Operations and ORO.30 Flight Authorisation support discharging flight operations requirements referred to in this chapter.

Configuration Deviation List

8.2.6.9 A Configuration Deviation List (CDL) is a listing of regulator-approved non-structural external parts that may be missing but the aircraft remains airworthy. A CDL provides options to dispatch an aircraft for flight when listed parts may be missing, provided the necessary performance corrections are adhered to (including limits or restrictions if required and specified rectification periods). Refer DASR M.A.301(a)2 and associated AMC/GM.

Superseded

8.2.6.10 CDLs are part of the certified type for any civil derivative aircraft (certified by the European Aviation Safety Agency (EASA) or the Federal Aviation Administration (FAA)). Within the ADF context, as part of Military Type Certification, the CDLs are presented as part of the Aircraft Flight Manual (AFM) for approval during Type Certification. Usually, they are contained in a standalone section of the AFM. The AFM is approved as part of Military Type Certification (DASR 21 Subpart B) and changes would be approved under (DASR 21 Subpart D).

8.2.6.11 The CDL should not be confused with the Minimum Equipment List (MEL). While the MEL describes the limitations of aircraft operation in case of a system being inoperative or having malfunctioned (e.g. transponder failure), the CDL deals with situations where external parts of an aircraft are missing (e.g. fairings, aerodynamic seals or panels).

MMEL

What is a MMEL?

8.2.6.12 A MMEL is a document created specifically to permit the continued operation of an aircraft type (e.g. C-130J-30) with unserviceable equipment. It is a list of items of equipment that may be temporarily unserviceable under certain conditions and limitations, while still maintaining the level of safety intended in the design standards. The MMEL does not take into account the operating circumstances of individual operators of that type. The MMEL cannot, in itself, be regarded as providing operational permission. It can, however, be the basis for the development of an individual Operator's MEL.

MMEL Characteristics

8.2.6.13 **Aircraft Type.** MMEL relief for a particular item may be unique to a specific aircraft type. Therefore, MMEL relief for an item for one aircraft type may not be the same as the relief allowed for the same item found in another aircraft type.

8.2.6.14 **Items required by an Airworthiness Directive (AD) are prohibited.** An MMEL will not include items that an AD requires to be operative, unless the AD specifically allows them.

8.2.6.15 **Variable Number of Items Required for Dispatch.** A MMEL may depict a variable number of items required for dispatch based on various makes and models of the same series aircraft. The MMEL must clearly articulate which makes and models each MMEL item is applicable to.

8.2.6.16 **Multiple Versions of the Same Item.** A MMEL may contain multiple versions of particular items (e.g., very high frequency (VHF) communications systems and fire extinguishers) that are installed on different models or series of the aircraft covered by the MMEL. The MMEL must clearly articulate which versions each MMEL item is applicable to.

8.2.6.17 **Repair Categories.** A MMEL will contain a repair category for each item. Each repair category allows for a certain amount of time until repairs must be accomplished.

8.2.6.18 **Prohibited Items.** A MMEL will not include items of the aircraft that are required for basic flight (wings, flaps, rudder, etc.), nor will it include instruments and equipment required for specific operations.

MEL

What is a MEL?

Superseded

8.2.6.19 A MEL is a document created specifically to manage the continued operation of an aircraft with unserviceable equipment consisting of an approved list of the specific unserviceable equipment for a particular make and model of aircraft by serial/production number and registration mark (e.g. C-130J-30, 5440, A97-440) as applicable. Its use is authorised by accepting the associated application procedures contained in an operator's Continuing Airworthiness Management Exposition (CAME) and/or operations manual, or other appropriately documented procedures.

MEL Transferability

8.2.6.20 An approved MEL for an aircraft is a non-transferable document, i.e. if the MAO of the aircraft changes, then a new approval for the MEL is required even if the aircraft retains the same registration mark.

8.2.6.21 If an aircraft moves from one Military Air Operator Certificate (MAOC) holder to another, the new MAOC holder cannot automatically use the approved MEL for the aircraft. The new MAOC holder will be authorised by DASA only if they have acceptable associated application procedures contained in their CAME and/or operations manual and have assessed the operator's CRE.

Use of the MMEL/MEL

MMEL/MEL Considerations for Use

8.2.6.22 The MMEL/MEL is an alleviating document. Its purpose is not to encourage the operation of aircraft with unserviceable equipment. It is never desirable that aircraft continue operations with unserviceable equipment. Such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety is maintained. A fundamental consideration in permitting the operation of aircraft with unserviceable equipment is that the continued operation of an aircraft in this condition is to be eliminated or otherwise minimised so far as reasonably practicable (SFARP).

Invoking the MEL

8.2.6.23 The Aircraft Captain or appropriately licenced and authorised Military Aircraft Maintenance Licence (MAML) holder invokes the MEL on behalf of the CAMO. It is the decision of the Aircraft Captain to accept the aircraft for flight with unserviceable systems or equipment listed in the MEL. The overriding principle is that, notwithstanding the provision of an approved MEL, a MAML holder should not release an aircraft for flight, and the Aircraft Captain should not accept an aircraft for flight, if it is considered unsafe for a particular flight.

8.2.6.24 A MAO may authorise Aircraft Captains to invoke MEL items through provisions in the Operations Manual. Where an Aircraft Captain is not authorised to invoke a MEL item the Aircraft Captain is to refer to local procedures for actions required to invoke the MEL item.

Developing a MMEL

MMEL Development Options

8.2.6.25 **Existing CAA/MAA MMEL as part of Operational Suitability Data (OSD).** As part of the introduction of a new type to Defence the initial certification package may contain a MMEL that has

Superseded

been developed by the OEM as part of the OEM state of design certification process. This MMEL document can be submitted as OSD, as part of the Australian MTC certification package and be assessed for approval as the DASA approved MMEL. Similarly, for an existing type with no DASA approved MMEL, an existing Civil Aviation Authority (CAA) / Military Aviation Authority (MAA) approved MMEL may be submitted for approval as a change to the type certificate.

8.2.6.26 In both cases above, foreign CAA/MAA approval of a MMEL does not constitute automatic approval under DASRs. DASA issues its own sovereign Military Type Certificates (MTC) for each aircraft type and does not 'accept' foreign civil or military TCs. Therefore, in order for a MMEL to be approved under DASRs it must be approved under the initial issue of, or as a change to, the DASA issued MTC and be included on the DASA issued Type Certificate Data Sheet (TCDS).

8.2.6.27 **MEL submitted in lieu of MMEL.** If the operator has access to an existing, or has developed, a MEL for the type, for which no MMEL exists, the operator may submit the MEL through the Military Type Certificate Holder (MTCH), for assessment as a MMEL. If the MEL is submitted, DASA will consider it a MMEL submission and assess it as such. It may then be used as the basis for acceptance as a MEL.

8.2.6.28 **Development of a new MMEL.** A MTCH may elect to submit a new MMEL to DASA for approval. DASA does not stipulate any specific format and/or contents of a MMEL. However, the Certification Programme must propose an appropriate Certification Basis that the MMEL will comply to, and that may include content and format requirements. Establishing the Certification Basis early and following the associated format will avoid delays in assessment and approval of the MMEL.

8.2.6.29 **Suitable Certification Specifications.** The Certification Programme should be submitted to DASA, proposing a Certification Basis for the MMEL. The following two certification specifications will likely be suitable for development of MMELs:

1. EASA CS-MMEL. CS-MMEL is the Certification Specification (CS) mandated by EASA for MMEL development and is likely to provide an acceptable basis for MMEL approval for Defence aircraft.

2. FAA FOEB process. FAA policy for MMEL approval is through the Flight Operational Evaluation Board process. MMEL document templates, guidance on specific systems, general format requirements, and guidance on justification requirements are available on the FAA FSIMS website. (Reference ICAO Manual – MMEL/MEL5 and Flight Standards Information Management System).

8.2.6.30 Alternate Certification Bases may be proposed in the Certification Programme but will require further justification.

MMEL development process

8.2.6.31 As the MMEL forms part of the Military Type Certificate, any MMEL change is to be classified IAW the guidance in DASR 21.A.91. On initial issue of the MMEL or identification of a MMEL change as Major, the Major Change to Type Certificate process as per DASR 21 subpart D applies. Minor changes to MMELs are to be processed IAW DASR 21.A.95. This process is depicted at Appendix 2.

8.2.6.32 **MMEL Change Classification Criteria.** The following guidance for classification of MMEL changes elaborates upon the generic classification advice in GM to DASR 21.A.91.

8.2.6.33 Conditions requiring classification of a MMEL change as Major:

Superseded

1. Where the change requires an adjustment of the MMEL certification basis;

2. Where the applicant proposes changes to the Means of Compliance (MoC) with the requirements for the MMEL certification basis (i.e. MMEL safety assessment methodology);

3. Where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:

   i. The substantiation data involving review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;

   ii. The assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or

   iii. The capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), Instrument Flight Rules (IFR)) under MMEL is extended.

8.2.6.34 Conditions where the MMEL change can be considered Minor:

1. Modifications to an item/s when:

   i. The change is only to the applicability of an item for configuration management purposes;

   ii. The change is the removal of an item;

   iii. The change is an increase in the number of items required for dispatch; and

   iv. The change is a reduction in the rectification interval of an item.

2. Addition of a new item when:

   i. It is considered as non-safety related IAW FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations CS-MMEL GM2 MMEL.110; or

   ii. It is indicated as eligible for minor change classification in FAA MEL Requirements for 14 CFR Parts 91 Subpart K (Part 91K), 121, 125, 125 LODA, 129, and 135 Operations, GM1 CS MMEL.145.

8.2.6.35 **Justification and development of supporting data.** Items must be justified for inclusion in the MMEL against the agreed certification basis. Any risk associated with inclusion of items is to be eliminated or minimised to the level inherent in the applicable design standards. Alternate methodologies for justification of changes must be presented to the Authority during the Certification Programme agreement (CP) process.

8.2.6.36 If the conditions and limitations applied against a MMEL item are assessed as insufficient to fully eliminate the associated risk, or an Equivalent Safety argument cannot be made that the risk meets the level of safety inherent in the applicable design standards in the aircraft Type Certification Basis (TCB), the MMEL item is NOT to be included in the MMEL.

8.2.6.37 Operational endorsement should be sought from the MAO (e.g. Hazard Tracking Authority or Standards Officer (STANDO) for any operational conditions or limitations identified against MMEL

Superseded

items. The MTCH in developing the MMEL considers the operational conditions/limitations of the aircraft against the type certification. The MMEL operational procedures are not specific to an individual Operator's Configuration Role and operating Environment (CRE).

8.2.6.38 **Relief from Development of Compliance Demonstration Evidence.** Relief from the requirement to develop compliance demonstration evidence can be sought on an item by item basis for MMELs. The requirements for leveraging prior certification from another CAA/MAA as per AMC to DASR 21.A.20 still apply when relief is applied in this manner.

MMEL approval process

8.2.6.39 Initial Type Certification

1. The applicant for initial DASA MTC would submit the MMEL as part of the application package.

8.2.6.40 MMEL for an aircraft with an existing DASA MTC

1. An MTCH submitting a MMEL for DASA approval must do so in accordance with the Change to Type Design process as described in DASR 21
2. Refer to Appendix 2: for the process flow to seek DASA approval of a MMEL.

Developing a MEL

Developing a MEL using an existing/relevant MMEL

8.2.6.41 DASA do not stipulate any specific format and/or contents of a MEL. Using an international recognised format could avoid delays in assessing the MEL. In the development of an MEL, DASA recommends that the MEL be developed in accordance with international standards as referenced in the Certification Programme from the MMEL (detailed above).

8.2.6.42 The MEL should be developed from the latest issue of the applicable MMEL on an item-by-item basis and keeping in view the relevant regulatory requirements.

8.2.6.43 If an operator chooses to add items that are not found in the MMEL (due to its particular type of operation) an assessment of those items must be carried out. This assessment is required to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the flight manual and any DASR requirements. Refer to the International standards as referenced in the Certification Programme from the MMEL for guidance on how to assess the criteria for these items.

8.2.6.44 In general, a MEL should be as, or more, restrictive than the applicable MMEL for the type of aircraft. If a certain item(s) of the applicant's MEL is less restrictive than the applicable MMEL, DASA will require an extensive qualitative and/or quantitative analysis to substantiate the proposed departure from the MMEL.

MEL Development with no MMEL

8.2.6.45 If a platform has no MMEL or MEL available from the manufacturer or other CAA/MAA and the operator wants to utilise the flexibility that a MEL affords, the Operator may choose to engage the MTCH to develop a MMEL from previously available deferment options.

Superseded

8.2.6.46 The MMEL should be developed in accordance with the guidance provided earlier in this chapter.

8.2.6.47 Once the MMEL is approved by DASA the operator can seek approval of the MMEL for use as an MEL from DASA.

MEL approval process

8.2.6.48 An Operator submitting a MEL for approval must provide DASA with:

1. A minute of application from the CAMO requesting approval of the MEL;
2. Digital access to a copy of the proposed MEL;
3. All OIP created for use of the MEL; and
4. If the MEL has no associated DASA approved MMEL, the MEL must be submitted for approval as a MMEL.

8.2.6.49 A MEL may cover more than one aircraft of the same type. However, all differences in the equipment/systems installed, if any, should be clearly identified by the aircraft registration mark.

8.2.6.50 Refer to Appendix 1: for the DASA process flow of MMEL/MEL approval.

Application for amendment to the MEL

8.2.6.51 Amendments to MELs are either mandatory or voluntary, depending upon the particular circumstances. Mandatory amendment of a MEL is required either:

1. When the applicable MMEL is amended so as to become more restrictive; or
2. When required by DASA in light of in-service experience.

8.2.6.52 Voluntary amendment of a MEL may be carried out when either:

1. The MMEL is amended so as to become less restrictive; or
2. As required by the operator, provided the proposed change is no less restrictive than the MMEL; or
3. Regulatory changes occur.

8.2.6.53 An application for amendment to an approved MEL, together with appropriate substantiation, should be forwarded to DASA.

MMEL/MEL Development Considerations

Operations and maintenance procedures

8.2.6.54 The objective of operations ((O)) and maintenance ((M)) procedures is to provide everyone using the document with clear and concise directions on how they are to proceed in case of unserviceability. The (O) and (M) procedures form part of the approved MEL.

8.2.6.55 **(O) Procedures:** Where the (O) symbol appears in the MMEL, an operations procedure must be developed that provides clear direction to the flight crew. These procedures may be included in the MEL. Where they are not included in the MEL, they must be available to the aircrew in another

Superseded

document that is always available to the aircrew (i.e. an operations manual or in an approved electronic form). In these cases, the MEL shall refer to a section of the appropriate document(s).

8.2.6.56 **(M) Procedures:** The MMEL may identify items that require a maintenance procedure. If this is the case, the operator must ensure that relevant (M) procedures have been developed for the MEL. These procedures must provide clear direction to the maintenance personnel.

Procedures for the use and guidance of flight crews and maintenance personnel

8.2.6.57 The operator must establish procedures for the use and guidance of flight crews and maintenance personnel, in relation to the MEL. These procedures must agree with those in the operator's CAME, Aircraft Maintenance Program (AMP), operations manual, and other operating documents. These procedures should include, but are not limited to, procedures for:

1. Deferring rectification action or invoking MEL item(s) for unserviceable equipment;
2. Placarding requirements as per the MEL;
3. Ensuring that a dispatched aircraft with an invoked MEL item(s) complies with the limits and conditions of the MEL;
4. Ensuring that existing deferred defects / MPTF / Command Clearances do not impact invoking of MEL provisions;
5. Controlling categorised repair intervals; and
6. The training of organisations personnel who are responsible for compliance with MEL procedures.

8.2.6.58 Procedures for invoking MEL items are normally contained in the operator's CAME, operations manual or an alternative document. Prior to issuing a MEL approval, DASA will ensure that the MEL references these procedures in the CAME, operations manual or similar document, if not already included in the MEL. If no procedures for the invoking of MEL items exist within the operator's organisation, then DASA will, in addition to vetting the MEL, require amendment to the CAME/MOE and/or operations manual.

8.2.6.59 A placarding procedure should be established and set out in the CAME/MOE and operations manual or, at least, within the approved MEL document.

8.2.6.60 When invoking a MEL item, the person responsible must:

1. Identify, in the aircraft technical log or appropriate document/maintenance information system, that this action has occurred;
2. Identify the item with its MEL number; and
3. Ensure that an unserviceable label is placed in an appropriate location (where applicable).

8.2.6.61 A procedure documenting the above requirement in the appropriate operator's documentation is acceptable for compliance purposes.

Repair intervals

8.2.6.62 Each item of a MEL must be repaired within the specified repair interval. These intervals are set to limit the maximum time an aircraft may fly with an unserviceable item(s) of equipment, and

Superseded

are designated Category 'A, B, C or D'. The definition of repair intervals should align with the selected certification basis for the MMEL as defined at para 8.2.6.29.

8.2.6.63 The operator must establish procedures whereby the maintenance support periodically reviews the deferred items. This is done to ensure that any accumulation of deferred items neither conflict each other nor present an unacceptable increase in crew workload. Notwithstanding the categorisation of item repair intervals, it should be the aim of each MEL document holder to ensure that unserviceable items are repaired as quickly as possible.

Repair interval extension

8.2.6.64 Each operator's MEL management program needs to contain procedures for controlling extensions to item repair intervals. Procedures must include the limitations of each extension and the method by which the operator approves an extension.

MEL training program

Training Requirement

8.2.6.65 The operator should as part of the introduction of a process for the use of a MEL develop a MEL training program for maintenance personnel and flight crew, which should be in place prior to an operator commencing operations with a MEL. The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures. This will ensure company personnel remain current with those procedures.

Maintenance Personnel Training

8.2.6.66 The training for maintenance personnel should include those sections of the CAME procedures dealing with:

1. The use of, and compliance with, the MEL;
2. Placarding of unserviceable equipment;
3. Return to service of an aircraft;
4. Dispatching an aircraft; and
5. Any other MEL related procedures.

Flight Crew Training

8.2.6.67 The flight crew training should include, but not be limited to, the following:

1. The purpose and use of a MEL;
2. Instruction on operator's procedures for the use and guidance of flight crew;
3. The process and procedures required for supervision and flight authorisation; and
4. The Aircraft Captain's responsibility with respect to the above procedures.

Superseded

8.3.1 Requirements for Maintenance Organisations

Introduction

8.3.1.1 This section provides additional information and guidance to DASR 145 Approval Holder Organisations and those organisations that are applying for approval under DASR 145. Further guidance on applying for a Maintenance Organisation approval can be found in Section 5 Annex G – AMO.

8.3.1.2 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approval), refer to Chapter 6.5, Recognition of other Aviation Safety Authorities and to Chapter 8.2, Continuing Airworthiness Management.

8.3.1.3 This chapter does not include information already presented at Volume 2 (DASRs), but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3.

DASR 145 – Requirements for Maintenance Organisations

8.3.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE).The scope of maintenance of aircraft and components activities should be in accordance with the Maintenance Organisation's policy and procedures defined in the MOE.

Acceptance of components

8.3.1.5 The AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components. Where an unserviceable or unsalvageable component is the subject of an occurrence report, the DASR 145 organisation should quarantine the component until the investigation has determined that the component is not required to be retained for further examination Additional information can be found in Chapter 8.3.4 – Acceptance of Components.

Certification of maintenance

8.3.1.6 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the Certificate of Release to Service (CRS) that must be issued at the completion of maintenance and before the next flight. Additional guidance for Certification of maintenance can be found in Chapter 8.3.3 - Certification of maintenance.

8.3.2 Performance of Maintenance

Introduction

Superseded

8.3.2.1 This chapter provides additional guidance on the performance of maintenance including guidance on line and base maintenance, and specialist maintenance qualifications.

8.3.2.2 Not all maintenance personnel in a DASA 145 MO need to be authorised as certifying and/ or support staff. Acting as certifying or support staff is intrinsically a hands-off activity (in contrast to the performance of maintenance being physical hands-on aircraft maintenance). DASA 145 MO personnel perform maintenance under a Task Sign-Off (TSO) authorisation. On-aircraft TSO is overseen, managed and later certified (issue of CRS) by authorised certifying staff.

8.3.2.3 Except for a few speciality areas (e.g. composite repairs), DASA does not prescribe knowledge / experience standards for the performance of maintenance. On-aircraft TSO provides an attestation that the maintenance task has been carried out to the required standard.

8.3.2.4 A DASA 145 MO has flexibility to determine their own Qualification, Training and Experience (QTE) requirements when assessing and authorising personnel to perform the vast majority of maintenance (less some specialist qualifications where DASA will specify acceptable means of compliance). It is up to a DASA 145 MO to determine the scope that maintenance personnel can be authorised to perform, and may also mandate the level of supervision maintenance personnel require – noting supervision can be performed by authorised persons who are not necessarily certifying staff – see GM2 DASR 145.A.35(e). Maintenance personnel do not need to hold a MAML, of any category, to be authorised to perform maintenance.

8.3.2.5 DASA oversight of DASA 145 MOs, in the context of foreign trained maintenance personnel employed to perform maintenance, will focus on the procedure that identifies knowledge and experience requirements, to determine the authorised scope of maintenance and supervision required.

8.3.2.6 For information on maintenance service providers that are approved though other means (i.e. not DASR 145 approved), refer Chapter 6.5, Recognition of other Aviation Safety Authorities and Chapter 8.2, Continuing Airworthiness Management.

8.3.2.7 For information on the performance of maintenance relates to the certification of maintenance, see Chapter 8.3.3 – Certification of Maintenance.

Line and Base Maintenance

Background

8.3.2.8 The Defence Aviation Safety Regulations (DASR) requires individual DASR 145 Approved Maintenance Organisations (AMOs) to define their own line and base maintenance activities in their Maintenance Organisation Exposition (MOE). Feedback from the regulated community indicates that there is insufficient DASR guidance on what types of activities constitute line and base maintenance. This chapter describes types of maintenance activities constituting line and base maintenance and describes the intended outcomes in relation to line and base maintenance as interpreted by DASA.

8.3.2.9 The DASR Glossary of Terms describes line and base maintenance as:

1. **Line Maintenance:** Carried out before flight to ensure that the aircraft is fit for the intended flight.

2. **Base Maintenance:** Maintenance tasks falling outside the criteria for line Maintenance.

Superseded

8.3.2.10 A more detailed definition of aircraft line maintenance is provided in AMC 145.A.20, together with a list of activities which “may” be considered as line maintenance. The word “may” is used because it is not possible to establish a provision giving a strict demarcation between line and base maintenance, having general applicability to all cases.

8.3.2.11 To assist civil MOs, the European Aviation Safety Agency (EASA) has developed an EASA 145 User Guide chapter on ‘Privileges and limitations of line maintenance’. This guide provides detailed guidance on what constitutes line and base maintenance. This Annex is has been developed based on the EASA User Guide to provide an EASA aligned approach to guide DASR 145 MOs in defining line and base maintenance.

Organisation responsibilities

8.3.2.12 The maintenance organisation should ensure prior to any intended maintenance event that the activity can be carried out under its line maintenance scope of approval (refer to AMC 145.A.20) and does not fall under paragraph 14 ‘Examples of maintenance activities considered to be base maintenance’ of this Chapter.

8.3.2.13 This assessment may not need to take place each time, but be based on already established MOE procedures (i.e. the fact that a daily check is a line maintenance task is obvious and does not need to be assessed each time).

8.3.2.14 Even if this assessment confirms that the activity is line maintenance, the maintenance organisation should also verify if this activity requires other means than the ones already in use at a line maintenance location.

When to assess the maintenance activity

8.3.2.15 The maintenance organisation`s assessment to decide if any maintenance event falls within the definition of line or base maintenance, may be needed in two different situations:

1. for an initial/change of approval, when evaluating the scope of work the maintenance organisation is applying for (refer paragraph 11); or
2. for an already approved maintenance organisation, when evaluating if maintenance requested by the customer (e.g. a new Service Bulletin (SB), defect rectification or work package requested by the customer, etc.) falls within the approved line maintenance scope of work.

Assessment of the intended scope of work (initial/change of approval)

8.3.2.16 It is the responsibility of the maintenance organisation to demonstrate to DASA that the intended scope of work may be carried out in a line maintenance environment, under its line maintenance scope of approval. The main criterion for this assessment is to consider the level of maintenance to be carried out under the line maintenance scope of approval, where the following general criteria apply:

1. **Trouble shooting, Defect Rectification.** Those unscheduled tasks required for the daily operation of an Aircraft and not falling under ‘Examples of maintenance activities considered to be base maintenance’;
2. **Minor scheduled line maintenance.** Those scheduled tasks not exceeding the weekly check as specified in the Aircraft Maintenance Program (AMP);

Superseded

3. **Scheduled checks.** Those scheduled tasks which exceed the weekly check (or equivalent as determined by the Authority). In this case, the organisation needs to analyse each of the routine tasks intended to be included in the line maintenance scope of work and identify a clear limit. This assessment needs to be performed using the Type Certificate Holder (TCH) data such as the manufacturer's Maintenance Planning Document (MPD), and/or the operator's AMP. The outcome of this exercise is to identify the intended limitation of the line maintenance scope of approval, in terms of scheduled maintenance checks. In particular, the following is expected:

4. Depending on the AMP logic (i.e. MSG 2, MSG 3, etc) a clear limitation to the line maintenance scope of work may be normally expressed in one of the following ways:

   i. "up to and excluding X check" (i.e. X= R1, R2, etc) for a MPD, where letter checks are identified;

   ii. "up to and excluding "X FH / Y FC / Z calendar time", for a MPD, where progressive task intervals are defined in terms of FH/FC/calendar time (i.e. X=3000FH, Y=750 FC, Z=12 months, etc);

5. The identified limit, to be indicated in the MOE, should be such that all the related routine/scheduled tasks are excluding any of the tasks listed in 'Examples of maintenance activities considered to be base maintenance'

6. A "decision making process" (refer paragraph 12 for example) needs to be established in the MOE in order to assess

   i. (the need to access the hangar (even if the activity is permitted under a line maintenance scope of approval), considering in particular the type of aircraft, the maintenance event type/complexity, the environmental and weather conditions;

   ii. any work order / work package received from the customer operator to ensure it may be fully performed under a line maintenance scope of approval, taking into account additional works to the original work package that may be added, leading out to the line maintenance scope of work, such as:

   – addition of previously deferred maintenance tasks; or

   – defects raising from the routine tasks (these defects are not known in advance, however, the related risk in terms of number and level of defects needs to be taken into account and estimated in advance).

8.3.2.17 **Example of 'decision making process'.** A R1 maintenance check on the Boeing Business Jet (BBJ) aircraft type is normally considered "line maintenance" when the routine tasks are assessed as per the manufacturer MPD/operator AMP. Therefore a maintenance organisation may be approved to perform this check under a line maintenance scope of work. However, a work order to perform the "R1 check", where the customer operator would request the performance of works in addition to the "R1" routine tasks, such as the addition of Airworthiness Directives (ADs), SBs, deferred tasks, will need to be carefully assessed by the maintenance organisation with the use of the "decision making process".

8.3.2.18 This type of maintenance check may easily fall within the examples given in Paragraph 14 'Examples of maintenance activities considered to be base maintenance' having the result to be considered as base maintenance and being outside the maintenance organisation scope of work. In such a case, the outcome of the "decision making process", may be for example:

Superseded

1. The impossibility to accept such work order from the operating organisation, being outside the scope of work of the maintenance organisation; or

2. to agree with the operating organisation a revised work order, to remove the works which have been identified as base maintenance tasks (e.g. removal of a SB which was requiring extensive disassembly and modification of flight controls, etc.).

Examples of maintenance activities considered to be base maintenance

8.3.2.19 When any of the following tasks are required to be carried out (regardless if contained in a scheduled maintenance check or arising from a defect rectification/AOG situation), a base maintenance scope of approval is needed:

1. High number of different type of tasks to be carried out, even if taken singularly those tasks may still fall under the definition of line maintenance (i.e. a combination of routine task cards, non-routine task cards issued following defects discovered during the check, out of phase tasks, deferred items from previous maintenance, minor repairs, minor modifications, component replacement, etc). Such cases require base maintenance production planning support and/or a base maintenance release to service process (category C Certifying Staff supported by B1/B2 support staff) in order to ensure that all the maintenance ordered has been carried out before issuing the CRS;

2. Replacement of any major component where the related maintenance procedures address the need of a hangar environment requiring special ground support equipment and/or structured production planning and/or complex and lengthy maintenance, such as for example a full landing gear replacement, simultaneous replacement of two engines, etc;

3. Any scheduled maintenance task (i.e. routine task from the AMP) which requires extensive disassembly of the aircraft and/or extensive in depth inspection;

4. Major repairs and/or major modifications;

5. Trouble shooting and/or defect rectification requiring special ground support usually relevant to base maintenance (e.g. special equipment, structured production planning, complex and lengthy maintenance);

6. A scheduled maintenance event, which in the planning phase has been already identified as significant in terms of duration and/or man-hours (i.e. an aircraft down time above 72 hours or four shifts, whichever is less);

7. A work package requiring a complex team composition in terms of high number and categories (avionic, structure, cabin, NDT qualification and skills, etc) of staff involved per shift; or

8. The management of the event by B1 and B2 support staff and the release by a C certifying staff.

8.3.2.20 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to ensure that even if each individual work order constitutes a line maintenance activity, a maintenance event cumulating several of these work orders remains within the AMO's line maintenance scope of approval.

Assessment of maintenance task by an already approved maintenance organisation

Superseded

8.3.2.21 For AMOs that do not hold a base maintenance approval, the AMO remains responsible to assess if any maintenance requested by the operating organisation falls within the approved line maintenance scope of work. This assessment is expected to be performed based on the "decision making process" described above.

Specialist Task Qualifications

8.3.2.22 **Introduction.** DASR 145.A.30(f) relates to MO personnel who carry out Non-Destructive Testing (NDT) and other specialised tasks such as composite repair and welding. Definitions pertaining to the scope of DASR 145.A.30(f) are as follows:

1. Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods (refer GM 21.A.30(f)). Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing (refer AMC 145.A.30(f)).

2. For the purposes of DASR 145.A.30(f), DASA should be consulted to confirm the complexity and associated training requirements of composite repairs for each platform. The complexity and training requirements for non-specialised composite repairs should be detailed in the DASR 145 MOE.

8.3.2.23 DASR 145.A.30(f) requires that the MO must ensure that personnel who carry out NDT and other specialised tasks are appropriately qualified in accordance with recognised standards. The following paragraphs provide guidance on the standards recognised by DASA and other aspects of personnel training and certification.

8.3.2.24 It should be noted that the training standards required to perform specialist tasks might exceed the training standards to certify this maintenance. For example a licence persons with no structural repair exclusions could certify for a complex composite repair but may not be qualified to perform the maintenance. In this case the certifying staff may require separate specialist supervision in order to very the maintenance has been performed properly.

Qualification of Personnel for Non-Destructive Testing (NDT)

8.3.2.25 **Recognised NDT Qualification Standards.** DASA recognises the following standards for qualification of personnel who carry out and/or control NDT of aircraft structures and/or components (refer DASR 145.A.30(f)):

1. European Standard EN4179 - Qualification and Approval of Personnel for Non-destructive Testing is the primary NDT standard recognised by DASA

2. NAS410 – NAS Certification & Qualification of Non-Destructive Testing Personnel is also recognised by DASA.

8.3.2.26 NAS410 is the only NDT qualification standard DASA recognises as being equivalent to EN4179. Organisations that wish to use an alternative NDT personnel qualification system should apply to DASA with a proposed Alternate Means of Compliance (AltMoC). Note that Australian Standard AS3669 and ATA Spec 105 have been assessed as non-equivalent to EN4179 (refer GM 145.A.30(f)) and will not be approved as AltMoC by DASA.

8.3.2.27 **NDT Personnel Training and Certification.** The appointed NDT Responsible Level 3 (RL3) for each DASR 145 MO is responsible for establishing a training and certification system which

Superseded

supports awarding of task authorisations to NDT personnel working within the DASR 145 MO. This training and certification system should be established in line with EN4179. In cases where the minimum training and experience hour requirements stipulated in EN4179 Section 6 do not align with Defence's requirements, a competency based training program can instead be used, provided the course program is approved by DASA. Refer to GM 145.A.30(f).

8.3.2.28 For details of the approach to NDT training and certification implemented in support of ADF DASR 145 MOs, refer to Volume 3 Section 4.2.3.

8.3.2.29 **Appointment of NDT Responsible Level 3.** AMC 145.A.30 stipulates that the NDT RL3 for a DASR 145 organisation is a nominated management position, and is accepted by DASA through a DASR Form 4 application. Each DASR 145 organisation should only have one appointed NDT RL3. The DASR Form 4 requires applicants to submit details and supporting documentation of relevant qualifications and experience. Specific to NDT RL3 applications:

1. Applicants are requested to provide a copy of all personnel certification records that DASR 145 organisations are required to retain under EN4179 Para 8.2 to demonstrate they meet the EN4179 requirements to be certified as a Level 3.

2. If the applicant holds certifications in multiple methods, only evidence from one NDT method is required. The employer is to ensure that certification records for all other methods are retained, as required by EN4179 Para 8.2.

Note: that DASA may request evidence of ongoing EN4179 compliance for NDT RL3s in the course of oversight and enforcement activities.

8.3.2.30 DASA does not require the involvement of the Australian National Aerospace NDT Board (NANDTB) in the certification of Level 3 staff. DASA will not request or rely on NANDTB recognition when assessing NDT RL3 Form 4 applications.

8.3.2.31 For questions about NDT RL3 Form 4 application evidence please email: dasa.dca@defence.gov.au

8.3.2.32 Responsibility for appointment of NDT RL3 personnel is as follows:

1. ADF DASR 145 MOs: the Directorate of Aviation Engineering (DAVENG), as Defence's Structural Integrity Centre of Expertise[3], performs the Defence NDT RL3 function (refer to Section 4.2.3 for further details).

2. Non-ADF DASR 145 MOs (i.e. contractor organisations): are responsible for appointing their own NDT RL3 personnel.

8.3.2.33 Notwithstanding the fact that Level 3 personnel may be qualified via EN4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from the methods and techniques published in the Instructions for Continuing Airworthiness (ICA)[4] unless the ICA expressly permits such deviations (refer AMC 145.A.30(f)). Although it is recommended that Level 3 personnel have a role in NDT ICA deviations or changes (refer DASP Manual Volume 3 Section 7.2.5), NDT ICA deviations or changes must be approved in accordance with DASR 21.

Qualification of Personnel for Composite Repairs

8.3.2.34 **Recognised composite repair qualification standards.** Some types of composite structure repair are considered a specialised task and therefore personnel conducting those types of composite repairs require appropriate qualification in accordance with an officially recognised standard. DASA

Superseded

recognises SAE AIR4938 - Composite and Bonded Structure Technician Specialist Training Document for qualification of personnel who carry out composite repairs (refer AMC1 145.A.30(f)).

8.3.2.35 SAE AIR4938 Revision C includes requirements for both initial training and on-going certification. Superseded revisions of SAE AIR4938 do not include the requirements for ongoing certification, and also omit the training curriculum for bolted composite repairs. Superseded revisions of SAE AIR4938 should not be used without approval from DASA.

8.3.2.36 Organisations that seek to use an alternative to SAE AIR4938 for the qualification of composite repair personnel to conduct specialised composite repairs should apply to DASA with a proposed AltMoC. Organisations should note MEA405 is considered an introductory composites course only. DASA does not recognise MEA405 Cert IV AME Structures as a suitable equivalent to SAE AIR4938 for the conduct of specialised complex composite repairs. The complexity of composite repairs, and associated training requirements will vary for each platform. When suitable controls can be identified to ensure ongoing airworthiness a lower standard than SAE AIR4938 may be recognised as suitable for specific circumstances. Such controls could include:

1. type of structure being repaired
2. type or complexity of composite repair being conducted
3. specific nature of training undertaken
4. experience of personnel
5. supervision requirements
6. OEM or aircraft type specific training

8.3.2.37 Applications to DASA to officially recognise alternate qualification standards should demonstrate that the alternate standard:

1. provides an equivalent level of training to SAE AIR 4938; or
2. is suitable in the context of the specific MO and the scope of the maintenance activities to be performed. In such cases, the application should clearly state the scope of the activities being performed, how the training is suitable for that scope, and the means by which the scope is to be controlled.

8.3.2.38 **Composite repair Personnel Training.** Prior to authorising staff to perform composite repairs, the DASR 145 MO should ensure the staff are trained and qualified in accordance with appropriate standards, SAE AIR49385 or approved AltMOC, for specialised composite repairs. Composite repair training and certification procedures for specialised and non-specialised composite repairs should be specified in the MOE.

8.3.2.39 DASR 145 MOs can utilise any training course that demonstrates compliance to the standard. Note that DASA-DAVENG, as Defence's Structural Integrity Centre of Expertise, conducts the certification (initial and re-certification) for all ADF DASR 145 MO staff who perform composite repairs (refer to DASP Manual Volume 3 Section 4.2.3 for further details).

8.3.2.40 DASR 145 MOs are responsible for establishing training and authorisation systems to ensure that personnel who conduct composite repairs are appropriately qualified. Further guidance for ADF and non-ADF DASR 145 MOs is as follows:

Superseded

1. ADF DASR 145 MOs: The MO should verify that technicians hold a valid PMKeyS proficiency (refer DASP Manual Volume 3 Section 4.2.3) for composite repair prior to authorising them to conduct composite repairs within an ADF DASR 145 MO. MO authorisations should only remain valid for the validity period of the applicable PMKeyS proficiency.

2. Non-ADF DASR 145 MOs: The MO should document their certification/re-certification process in their MOE. The standard does not impose specific requirements on who can conduct certification.

Qualification of Personnel for Aircraft Welding

8.3.2.41 The following paragraphs are applicable to DASR 145 MOs that perform aircraft welding repairs.

8.3.2.42 Welding is used in the repair of critical and non-critical airframe and engine components within Defence. As a specialist task, personnel conducting welding operations must be appropriately qualified in accordance with officially recognised standards.

8.3.2.43 CASA Civil Aviation Advisory Publication (CAAP) 33-1 (1) Aircraft manual welding: Approvals and qualifications provides information on how to apply for the initial issue or renewal of an aircraft welding authority under Civil Aviation Regulations. DASA has determined that a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification for Defence purposes.

8.3.2.44 **DASR Requirement.** DASR 145 MO that perform aircraft welding repairs must comply with DASR 145.A.30(f), which requires "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards."

8.3.2.45 **Acceptable Means of Compliance.** DASA considers a CASA welding authority, granted in accordance with CAAP 33-1 (1), is an appropriate qualification in accordance with DASR 145.A.30(f).

8.3.2.46 Organisations choosing to utilise welders qualified in accordance with CAAP 33-1 (1) must:

1. Ensure technicians hold a valid Civil Aviation Safety Authority (CASA) issued aircraft welding authority prior to task authorisation.

2. Ensure technicians are only authorised to carry out those types of welding processes that are specified in the welding authority document.

3. Ensure MO authorisations only remain valid for the validity period of the CASA-issued welding authority (i.e. renewal is required every 2 years IAW CAAP 33-1 (1)).

Aircraft Welding Questions and Answers

8.3.2.47 **Q:** What does a DASR 145 MO need so that it can use welders with a CASA welding authority?

8.3.2.48 **A:** The DASR 145 is required to:

1. Identify the scope of welding repairs that it requires (that is included in its overall maintenance scope).

2. Update the DASR 145 MO Orders, Instructions and Publications (i.e. MOE and any other associated documentation), to show compliance to DASR 145.A.30(f) and

Superseded

implement the required management framework. The aircraft welding repair training and qualification requirements should be specified in the MOE.

3. Authorise technicians who have obtained CASA welding authority

4. Ensure that authorised staff maintain their competency and CASA welding authority currency.

8.3.2.49 **Q:** How does a person achieve CASA welding authority?

8.3.2.50 **A:** CAAP 33-1 (1) details the framework that CASA applies to provide a welding authority, which is granted to applicants that have:

1. Successfully completed a relevant Australian Quality Training Framework recognised course; and

2. Passed the welding testing set out in the CASA Welding Syllabus.

8.3.2.51 Additional training may be required dependent on the specific work scope required by the DASR 145 MO. CASA will confirm any specific training requirements during the application for the welding authority.

8.3.2.52 DASR 145 MOs are responsible for organising CAAP 33-1(1) compliant renewal assessments for their personnel when required. There are a number of commercial organisations who employ CASA-authorised aircraft welding assessors (queries should be addressed to Contact us | Civil Aviation Safety Authority

8.3.2.53 CASA charge a fee to apply for the initial issue and for renewal of a welding authority. Applicants will also require a CASA Aviation Reference Number (ARN) prior to applying for a welding authority.

8.3.2.54 **Q:** Do welders require renewal of their CASA welding authority?

8.3.2.55 **A:** Yes. CAAP 33-1(1) requires a two yearly renewal in order to remain current. DASR 145.A.30(f) requirement that "Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards" requires a current CASA authorisation.

8.3.2.56 **Q.** Who covers the cost of gaining a CASA welding authority and renewal?

8.3.2.57 **A:** For:

1. Defence Maintenance Organisations, initial authority for ASTTECHs is covered within the Welder Aircraft Course at RAAFSTT, all subsequent renewal costs are to be supported though unit, or parent command funding.

2. Contractor Maintenance Organisations, refer to arrangements detailed in your contract.

8.3.2.58 **Q:** Can a non-welder supervise the conduct of a renewal welding assessment?

8.3.2.59 **A:** No. CASA requires that a CASA-authorised assessor supervise the conduct of welding examinations, and DASA has adopted this position.

8.3.2.60 **Q:** Can an organisation authorise welders with a different qualifications (in lieu a CASA welding authority)?

Superseded

8.3.2.61 **A:** Yes. DASR 145 MOs who wish to use an alternative qualification to that stipulated in AMC1 145.A.30(f) should seek approval from DASA (as AltMoC).

8.3.2.62 For further information refer to the following:

1. For issues relating to the use of CASA welding authority within the DASR context please contact the DASA Desk Officer assigned to your organisation or email dasa.dca@defence.gov.au.

2. For queries related to gaining and maintaining CASA welding authority and the application of CAAP 33-1 (1), refer Contact us | Civil Aviation Safety Authority

8.3.3 Certification of Maintenance

Introduction

8.3.3.1 This chapter provides guidance in relation to the Certificate of Release to Service (CRS) process for aircraft maintenance. The document aims to consolidate the applicable requirements from different sections of the DASR and describes the intended outcomes in relation to Sign-off & subsequent CRS at the completion of maintenance.

Background

8.3.3.2 Maintenance carried out on an aircraft, its systems and its components must be certified at completion and prior to its return to service. The instrument used to achieve this outcome is the CRS which must be issued before flight at the completion of maintenance. The CRS should contain as a minimum (AMC 145.A.50(b)):

1. Basic details of the maintenance that was carried out;

2. Date such maintenance was completed;

3. Identity of the organisation and person issuing the CRS; and

4. Limitations to airworthiness or operations, if there are any.

8.3.3.3 The requirements for CRS reside across multiple regulation subsections (DASR M and DASR 145) that collaboratively inform the regulated community of DASA's requirement. This chapter summarises the applicable requirements for CRS to assist the community in meeting the DASR.

Certification of Maintenance Responsibilities

Continuing Airworthiness Management Organisation responsibilities

8.3.3.4 CAMO responsibilities are described in detail within DASR M and include:

1. the CAMO is responsible for all activities aimed to determine the airworthiness status of the aircraft and to appropriately plan and coordinate maintenance.

2. ensuring that all maintenance requirements (Airworthiness Directives (AD), Aircraft Maintenance Program (AMP) requirements, defect rectification, etc...) are complied with and released by a DASR 145 Maintenance Organisation (DASR 145 MO) (or equivalent (M.A 708(b)).

Superseded

3. the CAMO is responsible for planning and ordering all required maintenance and for ensuring that all ordered maintenance conducted by the DASR 145 MO or equivalent is complete and has a CRS. The CAME must explain how this is achieved.

DASR 145 Maintenance Organisation responsibilities

8.3.3.5 The DASR 145 MO (or equivalent) responsibilities are described in detail in DASR 145 and include:

1. the development of 'certification of maintenance' procedures that ensures all maintenance actions have been properly coordinated and the CRS is issued within a reasonable timeframe after the actual performance of the tasks;
2. issuing a CRS following maintenance; and
3. the CRS issued has to be recorded in the Continuing Airworthiness (CA) record system. This information shall be available to the aircraft captain (refer to DASR M.A.306 and AMC DASR M.A.306(a), who is ultimately responsible for accepting the aircraft before a flight takes place.

DASR 145 maintenance personnel responsibilities

8.3.3.6 The completion of maintenance requires two actions. They are:

1. a 'sign-off'; and
2. a CRS.

8.3.3.7 These two actions may be performed by a singular person or group of people dependent upon maintenance complexity, qualifications and authorisations.

Maintenance Authorisation

8.3.3.8 A person can only be authorised when they have met all the organisation's applicable qualification requirements, and only for the scope of work applicable to that qualification detailed in the DASR 145 Maintenance Organisation Exposition (MOE). A person can carry out maintenance and sign-off tasks that they have performed for a particular maintenance activity, and also be a support or certifying staff for another. As an example, a person may be authorised to sign-off on an aircraft type, and certifying and/or support staff on a different aircraft type.

8.3.3.9 DASR 145.A.35 (i) requires the maintenance organisation to nominate an individual[6] responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff.

Sign-off Authorisation.

8.3.3.10 This is exercised by a competent (IAW AMC1 145.A.30(e)) and appropriately authorised person, that the maintenance has been completed to the standard required in accordance maintenance data specified in DASR 145.A.45.

8.3.3.11 AMC 145.A.65(b)(3)3 states that, in order to prevent omissions, every task or group of tasks should be signed-off by authorised personnel after its completion. It also states that a sign-off relates to one step in the maintenance process and is different from a 'release to service' (CRS). Importantly,

Superseded

a sign-off is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed.

8.3.3.12 Furthermore, this AMC states that work by 'unauthorised personnel' (temporary staff, trainee/apprentice) must be witnessed by the authorised person before they sign-off. This means the authorised person signing off the task is responsible for the task.

8.3.3.13 IAW AMC1 145.A.30(e) personnel performing the sign-off, "shall be able to carry out tasks to any standard specified in the maintenance data, and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards".

8.3.3.14 Nevertheless, holding a sign off authorisation doesn't mean that the authorised person can sign off all tasks. It means that they can sign off tasks within the scope of their authorisation, depending on the qualifications, training and experience held, and in accordance with a procedure described in the MOE. Sign-off authorisation does not need to be restricted to singular tasks where the technician is required to/has demonstrated a degree of competence for that task. In contrast, the technician shall demonstrate competence in performing or supervising work applicable to their training and qualifications.

8.3.3.15 Further details related to task completion and sign-off can be found in Chapter 8.3.2 – Performance of Maintenance.

Certificate of Release to Service

8.3.3.16 In executing the obligations of DASR 145.A.50(a) the organisation must have procedures in place that ensure:

1. the individual issuing the CRS is appropriately authorised to do so;
2. the individual issuing the CRS has ensured the maintenance has been carried out correctly using appropriate procedures IAW DASR 145.A.45(b); and
3. as a result of the maintenance conducted there are no defects which are known to 'endanger flight safety'.

8.3.3.17 A CRS is an attestation made by Certifying Staff by way of a certification signature after the completion of maintenance within their authorisation scope. The certification signature creates a 'certificate' and thus accountability, signifying that the maintenance or group of maintenance activities can be released to service. In Line maintenance the holder of a category A, B1 or B2 MAML may issue a CRS within the scope of their MAML and authorisation. In Base Maintenance the holder of a category C MAML is required to issue the CRS after the completion maintenance within the scope of their MAML and authorisation. Issue of a CRS in Component Maintenance can be done by appropriately authorised certifying staff, in this instance the individual does not need to hold a MAML.

8.3.3.18 There are two elements that need to be fulfilled by the authorised Certifying Staff before the issuance of a CRS is possible:

1. **Ensure.** Verify through oversight and management to ensure that the maintenance has been properly carried out; and
2. **Assessment.** Ensuring that no non-compliances which are known to exist that could 'endanger flight safety'

Superseded

How do Certifying Staff "ensure that the maintenance ordered/tasked has been properly carried out"?

8.3.3.19 *Verification through the supervision of the maintenance task.* Certifying Staff ensure that maintenance has been properly carried out by ensuring maintenance has been conducted in accordance with procedures detailed in the MOE and through the correct use of maintenance data as specified in DASR 145.A.45.

8.3.3.20 This statement does not necessarily mean that authorised Certifying Staff have to personally perform or supervise[7] the whole process of every task, rather it is expected that Certifying Staff will (non-exhaustive list):

1. make sure that personnel assigned to perform the maintenance are authorised to sign-off the work for the appropriate scope of their authorisation;
2. coordinate the different tasks associated with the maintenance being performed; and
3. be available to support personnel in case of any mistakes or unexpected difficulties.

8.3.3.21 Authorised Certifying Staff are responsible to determine the amount of involvement they require in order to be satisfied that the maintenance can be issued a CRS. Subsequently, the DASR 145 MO cannot limit Certifying Staff in terms of what level of supervision they put in place for the maintenance task. The DASR 145 MO may however set a minimum requirement.

How do Certifying Staff, "make an assessment that there are no non-compliances which are known to endanger flight safety"?

8.3.3.22 This is achieved by a cognitive process that assesses whether an endangerment to flight safety exists as defined within AMC1 DASR 145.A.50(a) against the physical outcomes of maintenance ordered by the CAMO. It does not require the DASR 145 MO to find or become responsible for hidden defects which are not expected to be discovered during the ordered maintenance. Defect assessments, including those endangering flight safety, must be clearly identified in the CA records system along with any corresponding limitations (if any) for further CAMO consideration.

Considerations for when the aircraft is left in a non-airworthy condition

8.3.3.23 In circumstances where after performing the maintenance ordered by the CAMO, the aircraft is left in a non-airworthy configuration, a CRS can still be issued for the maintenance that has been completed. The CRS can be issued as long as the incomplete maintenance or known defects are properly identified in the CA records system and communicated to the CAMO. For example, where the DASR 145 MO removes an engine for preservation (without installing a new one), or where the organisation performs an NDT inspection and identifies a crack outside limits.

8.3.3.24 The circumstances mentioned above (including defects affecting flight safety discovered during maintenance), can be properly addressed by using the provisions contained in DASR 145.A.50(c) and (e).

8.3.3.25 It is important to appreciate that a CRS does not mean that the aircraft is airworthy and ready for flight. A CRS is issued by the DASA 145 MO for the maintenance performed; the CAMO is accountable for ensuring that all CA requirements are met for the aircraft to undertake its assigned mission before releasing to the Operator.

When is a CRS issued?

Superseded

8.3.3.26 IAW DASR 145.A.50(b) “A certificate of release to service shall be issued before flight at the completion of any maintenance”. Subsequently, “any maintenance” can be interpreted in multiple ways, such as:

1. any maintenance task.
2. any combination of maintenance tasks.
3. any maintenance event.

8.3.3.27 Utilising the flexibility afforded by the “any maintenance” interpretation an organisation may choose one or more of the following systems of release to service:

1. Several CRS are issued, each one of them covering a different single maintenance task.
2. Several CRS are issued, each one of them covering a different group of maintenance tasks.
3. A single CRS is issued covering all the maintenance included in a maintenance event.

8.3.3.28 The organisation must ensure that the CRS issued to the CAMO clearly identifies what maintenance is complete. If there is any incomplete maintenance, the CRS must clearly identify it in the CA records system and the corresponding limitations (if any). In each of the above cases, it is important to note that there is no change in the accountabilities of the individual authorised Certifying Staff in signing the CRS.

Who can issue a CRS in Line Maintenance?

8.3.3.29 Only appropriately authorised category A, B1 and/or B2 MAML holders can issue a CRS in Line Maintenance. The scope and responsibility of each license category is provided below.

Limited Certification Authorisation

8.3.3.30 By way of exception to paragraph 8.3.3.29, and in accordance with 145.A.30(j) 4, in unforeseen cases where the aircraft is grounded or operating away from a Main Operating Base, and where no appropriate certifying staff are available, the maintenance organisation may issue a limited certification authorisation to the aircraft commander on the basis of the flight crew licence subject to being satisfied the aircraft commander can accomplish the specified task to the required standard. These provisions shall be detailed in a MOE procedure.

One off Certification Authorisation

8.3.3.31 In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation in accordance with 145.A.30(j)5.

Category A licence

8.3.3.32 The category A licence permits the authorised MAML holder, in a Line Maintenance environment only, to issue CRS for work that the licence holder has personally performed (‘sign off’) and within the scope of their certification authorisation.

8.3.3.33 A category A licence does not permit the authorised MAML holder to issue a CRS for the work of others, only for their own maintenance. While other personnel may be present and directed

Superseded

by the authorised A MAML holder in providing assistance during the performance of the maintenance task, the category A MAML holder may not undertake a supervisory role.

Category B licence

8.3.3.34 The category B1/B2 licence permits the authorised MAML holder to issue CRS, within the scope of their license and certification authorisation on maintenance that has been 'signed off' by themselves or other authorised personnel, within the scope of their license and certification authorisation.

Category C licence

8.3.3.35 The category C licence permits the authorised MAML holder to issue a CRS following Base Maintenance on aircraft carried out by a DASR 145 AMO. By definition, the DASR permits an authorised category C MAML holder to issue a single CRS for all maintenance activities pertaining to the aircraft during a single Base Maintenance visit.

8.3.3.36 Noting the complexity and the volume of the maintenance being carried out during a Base Maintenance activity, it is difficult for the authorised category C MAML holder to be across all tasks, to the extent required, to issue a CRS. For this reason, the authorised category C MAML holder may use Support Staff to enable the CRS to be issued.

8.3.3.37 The authorised category C MAML holder is accountable to ensure that all required maintenance that has been ordered, has been carried out properly, that there are no non-compliances which are known to endanger flight safety and any outstanding or incomplete maintenance has been identified and the CAMO notified before issuance of the CRS.

Support Staff

8.3.3.38 Support Staff are authorised B1 and B2 MAML holders. The role of Support Staff during Base Maintenance is to conduct, within the scope of their MAML and authorisation, activities such that it can be communicated to the authorised category C MAML holder that:

1. the maintenance has been performed properly;
2. that any defects found during the course of maintenance are recorded in the CA records; and
3. that any outstanding or incomplete maintenance is identified and recorded in the CA records.

8.3.3.39 In essence, Support Staff are oversighting and managing allocated maintenance tasks within Base Maintenance in support of the authorised category C MAML holder. Subsequently, the DASR 145 MO must have a mechanism in place and articulated in the MOE WRT how Support Staff communicate to the category C MAML holder when the CRS can be issued.

8.3.3.40 An authorised category C MAML holder may not require Support Staff if they also hold the required B1/B2 license scope and subsequent authorisation with regard to the Base Maintenance being performed. The authorised category C MAML holder in this instance can issue the CRS without the use of additional Support Staff. The procedures with respect to an authorised category C MAML holder acting as their own support staff must be articulated in the MOE.

Summary of Maintenance Authorisations

Superseded

8.3.3.41 The following figure summarises the different types of authorisations an organisation will require and the scope of work against which they may authorise their staff. It is the DASR 145 that performs and certifies maintenance requested by the DASR M.

Type of Authorisation	Line Maintenance		Base Maintenance		Component Maintenance	
	Sign Off*	CRS	Sign Off*	CRS	Sign Off*	CRS* See note 1
Technician (non MAML holder)	✓		✓		✓	✓
Non Type Rated B1/B2 MAML Holder	✓		✓		✓	✓
Type Rated B1/B2 MAML Holder	✓	✓	✓	Support Staff Does not issue CRS **See note 2**	✓	✓
A MAML Holder	✓	✓ Task Authorised **See note 3**	✓		✓	✓
C MAML Holder	✓	When Exercising B MAML	✓	✓	✓	✓
Foreign Trained Technician	✓		✓		✓	✓

* Denotes No MAML Required therefore all trained technicians may be authorised to perform maintenance and Sign Off. Authorisation QT&E requirements to issue a CRS in Component Maintenance is determined by the AMO
Note 1: Component CRS may be issued through ARC (Form 1) or via process detailed in the MOE
Note 2: This is not a certification activity. Type Rated B1/B2 Technician may be authorised to confirm tasks carried out to the required standard (i.e.: attest) for maintenance personally conducted or conducted by other technicians, to the scope of their B MAML
Note 3: May be Task Authorised to the scope of the A MAML for maintenance personally conducted

Figure 1 Summary of Maintenance Authorisations

8.3.4 Acceptance of Aircraft Components

Introduction

8.3.4.1 This chapter provides additional guidance on what constitutes a DASR Form 1 or recognised equivalent and outlines how DASR 145 Approved Maintenance Organisations (AMOs) should assess the suitability of component documentation to ensure such components are eligible to be fitted to Defence registered, type-certified products.

8.3.4.2 The Defence Aviation Safety Regulations (DASR) require Approved Maintenance Organisations (AMOs) to ensure the airworthiness[8] of components and materials prior to fitment to Defence registered, type-certified products. To fulfil this requirement, the AMO must ensure that components are accompanied by appropriate documentation attesting to the legitimacy of the component's maintenance or production history. This is underpinned by the regulatory requirement for the AMO to obtain a DASR Form 1 or equivalent documentation prior to fitment of such components.

8.3.4.3 This chapter relates to the acceptance of new and used aircraft components, which are listed by the appropriate design organisation as eligible for installation in/on a product and included in the design data approved by the Authority[9]. The term components broadly covers any product (other than complete aircraft), part or appliance that is, or is intended by its manufacturer to be, a part of or used in operating an aircraft in flight, or is installed in or attached to a product. This may include any self-contained part, combination of parts, assembly, subassemblies or units, which perform a distinctive function necessary to the operation of the airframe, engine, or propeller, or may include any other instrument, mechanism, equipment, apparatus, software or accessory, including communications equipment.

Superseded

8.3.4.4 Although alternate artefacts can be consumed by a DASR 145 Approved Maintenance Organisation (AMO), DASA requires the relevant CAMO to seek approval for, and manage, the ongoing validity of alternate artefacts for their respective platforms. Further detail on alternate artefacts can be found in Chapter 8.2.3 – Alternate Artefacts.

Products, parts and appliances

8.3.4.5 To align with the European Military Airworthiness Requirements (EMAR), the DASR has replaced the term Aeronautical Product with separate definitions for products, parts and appliances. The term 'components' in this document will be used interchangeably with products (other than complete aircraft), parts and appliances for simplicity.

Acceptance of components

8.3.4.5 The AMO is responsible for ensuring the 'eligibility for fitment' of components to type-certified products prior to installation[10].

Eligibility for fitment

8.3.4.6 A component is eligible to be fitted to a type-certified product, or another part or appliance if:

1. the fitting of the component is permitted by the approved design[11] for the product, part or appliance of the higher assembly;
2. the component is in a serviceable condition for safe operation; and
3. the component has been appropriately released or returned to service[12].

8.3.4.7 The AMO should have procedures for the acceptance of components and material, to ensure that the supplied components and material are in satisfactory condition and eligible for fitment. Furthermore, the AMO is responsible for ascertaining the traceability of components and material to their original or authorised source, including the maintenance or production and supplier source, where applicable. Therefore, it is the responsibility of the installer to request the appropriate documentation which establishes the airworthiness status and traceability of components and materials.

8.3.4.8 In determining whether a component is eligible for fitment, the AMO should conduct the following:

1. a physical inspection of components and/or material (including a check for any obvious physical damage and verification that part numbers, serial numbers, lot and/or batch numbers, etc. match the accompanying documentation; and
2. a review of accompanying documentation and data, which should be acceptable IAW DASR 145.A.42.

8.3.4.9 Particular caution should be exercised when the origin of components and materials cannot be established or when the origin is in doubt.

8.3.4.10 The flowcharts provided at Appendix 1 and Appendix 2 illustrate the process for determining the eligibility for fitment of new and used aircraft components, respectively, to type-certified products, or other parts and appliances.

Superseded

Acceptance of Aircraft Components

What is an Authorised Release Certificate?

8.3.4.11 An Authorised Release Certificate (ARC) is a document issued by an entity that has the applicable privilege and attests that a new or used component has been produced or maintained IAW the approved design data/standard, modification standard or applicable maintenance data[13].

8.3.4.12 An acceptable ARC is either:

1. DASR Form 1, or equivalent (refer DASA recognition website); or
2. an 'alternate artefact' accepted by DASA.

8.3.4.13 An acceptable ARC must show traceability back to a recognised CAA/MAA. In general, an Authorised Release Certificate must provide evidence of (where applicable):

1. the name and address of the issuing organisation;
2. the name of the recognised CAA/MAA;
3. evidence that the issuing organisation is working within the recognised authority's system (e.g. organisation approval reference);
4. details of the component(s): description, part number, serial number(s) and/or batch number, as applicable;
5. for used service-life-limited components, complete traceability to the component's service history;
6. a clear indication of the current airworthiness status (serviceability) of the component at the date of issue;
7. a release statement made by a suitably authorised person within the production or maintenance organisation;
8. the name, signature (or electronic equivalent) and approval number (where applicable) of the person making the release statement;
9. for components released from maintenance, a statement that the maintenance was carried out in accordance with the recognised authority's regulation/policy; and
10. for components released from production, a statement that the component(s) was manufactured in conformity with approved data.

8.3.4.14 The ARC does not constitute authority to install the item on a particular product or component, but provides evidence that assists the AMO in determining the item's eligibility for fitment. Furthermore, an ARC cannot be used for the release of complete aircraft.

8.3.4.15 The ARC serves as the official certificate for components from the manufacturer/AMO to users. It should therefore be used for the transfer of components between different airworthiness systems or AMOs. A delivery or shipping note does not constitute an ARC.

8.3.4.16 It should also be noted that a mixture of new and used items is not permitted on the same ARC. Likewise, a mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same certificate.

Superseded

When is an Authorised Release Certificate required?

8.3.4.17 An ARC is necessary for the release to service of either new or used components. The certification of new components is performed IAW DASR 21.A.307, whereas the certification of maintenance on used components is performed IAW DASR 145.A.50.

8.3.4.18 A component is eligible for fitment to a type-certified product when the component is in a condition for safe operation (i.e. serviceable) and accompanied by an ARC. An ARC helps the AMO to determine the airworthiness approval status for components and therefore eligibility for fitment.

8.3.4.19 **Release of new components following production**[14]**.** The component manufacturer is responsible for producing the ARC following the production of a new component. The purpose of the Authorised Released Certificate for new components is to certify that the item has been manufactured in conformity to approved design data and marked in accordance with DASR 21, Subpart Q. An ARC is required for components produced under:

1. type-certificate or supplemental type-certificate and changes thereof;
2. Production Organisational Approval;
3. Parts Manufacturing Approval (PMA) / European Part Approval (EPA)[15]; or
4. AUSMTSO authorisation.

8.3.4.20 Such components will normally be listed within the OEM furnished Illustrated Parts Catalogue (IPC) or Illustrated Parts Breakdown (IPB).

8.3.4.21 **Release of used components following maintenance**[16]**.** The purpose of the ARC for used components is to release components to service after off-aircraft maintenance. The ARC is issued by the AMO and must be within their scope of approval

8.3.4.22 Issuing an ARC following maintenance is an attestation that all maintenance is complete (except for deferred defects agreed to by the CAMO), and there are no non-compliances which are known to endanger flight safety. Any incomplete maintenance ordered/tasked should be clearly stated in the ARC when such non-compliances (i.e. deferred maintenance) are within the approved aircraft limitations.

8.3.4.23 Only personnel authorised by the DASR 145 may issue a DASR Form 1 Authorised Release Certificate following off-aircraft maintenance. Where component maintenance is subcontracted to another maintenance organisation[17], the ARC may be issued either at the:

1. non-DASR 145 contractor/tasked maintenance organisation[18]; or
2. AMO facility by staff holding a certification authorisation, as appropriate[19] .

8.3.4.24 Further, for used components that are service life-limited the ARC shall contain, or be accompanied by, an updated maintenance status with reference to this status in Block 12 of the certificate. In addition to configuration data (modifications, repairs, ADs and SBs), the status should contain information on the utilisation, particularly accumulated service life in relation to component life-limits.

When is an Authorised Release Certificate not required?

Superseded

8.3.4.25 An ARC is not always required after component production or maintenance. However, documented evidence of conformity to approved design or certified material specification must be obtained prior to fitment to a type-certified product. Such evidence must be traceable back to the organisation that manufactured or maintained the component.

New Components.

8.3.4.26 **Specific equipment.** Components which have been incorporated into the type design as specific equipment[20] and therefore have been shown not to adversely affect the airworthiness of the aircraft and not subject to recognised airworthiness standards[21] do not require an ARC. The CAMO should provide installation instructions that authorise the component's return to service requirements. Examples of specific equipment may include commercial-off-the-shelf (COTS) 'industry supply' equipment. This may include Commercial Parts such as cabin reading light bulbs, curtain rings, sink valves, etc.

8.3.4.27 **Standard Parts.** Standard Parts must be supplied with a CoC referring to the specified standard, the manufacturer and supplier source, the batch/lot number and, if applicable, the shelf life (including expiration date) and storage conditions. Standard Parts are specified within the manufacturer's IPC/IPB or maintenance data. Examples of Standard Parts include, but are not limited to, those conforming to National Aerospace Standard (NAS), Air Force/Navy (AN) Aeronautical Standard, Society of Automotive Engineers (SAE), Aerospace Standard (AS), Military Standard (MS), etc.

8.3.4.28 A part is no longer considered a Standard Part if it is used in a critical application that imposes qualification or quality control requirements beyond the published standard specification. In such a case, the OEM should allocate its own part number reference, and these parts would require an ARC.

8.3.4.29 **Materials.** Both raw and consumable materials, used in the fabrication, maintenance, servicing or operation of an aircraft or component, may be accepted without an ARC[22]. Such materials are required to meet the specification detailed in the approved design, and have appropriate traceability.

Used Components.

8.3.4.30 **Restricted Parts manufactured by the AMO.** Where a maintenance organisation has been granted approval by the Authority to fabricate a restricted range of parts to be used by that maintenance organisation in the course of overhaul, maintenance, modifications or repair within its own facility, such parts do not qualify for certification via an ARC[23].

8.3.4.31 **Unserviceable Parts.** An ARC should not be issued for any unserviceable components, except where such items are undergoing a series of maintenance processes at multiple AMOs. In this case, the receiving AMO requires an ARC to accept the component prior to subsequent maintenance.

8.3.4.32 **In-house release.** An ARC may not be required in the case where an AMO maintains a component for its own use and there is an approved alternative in-house release document as described in the AMO's MOE.

8.3.4.33 **Aircraft on Ground – other than at Main Operating Base (MOB).** When an aircraft is grounded at a location other than the MOB due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with an alternative release certificate, subject to CAMO approval. The component must be removed at a time specified

Superseded

by the CAMO, unless the appropriate release certificate has been subsequently obtained, prior to removal of the component.

What do I do with a completed Authorised Release Certificate?

8.3.4.34 The completed ARC becomes part of the technical record for the component to which it relates, and eventually will become part of the technical record of the higher assembly or product on which that component is installed. The certificate is therefore subject to all applicable regulatory requirements related to maintenance and technical records .

When are components not eligible for fitment?

8.3.4.35 A component is not eligible for fitment on a type-certified product where it is known or suspected to have any of the following:

1. Discrepancy between the component's identifying markings (as required by DASR 21 subpart Q) and its accompanying documentation;
2. Non-conformances between the component's physical characteristics and its approved design data/specification or applicable maintenance data (i.e. unacceptable or questionable quality);
3. Damage (due to packaging, etc.) or unserviceability;
4. Absence of or incomplete or inappropriate release documentation to determine the airworthiness status or eligibility for fitment; or
5. Unknown, suspect or unverified origin of the component (i.e. has not or may not have been manufactured or maintained by an approved source).

8.3.5 – Flexibility Provisions for Maintenance Organisations

Introduction

8.3.5.1 This chapter provides guidance on the application of DASR GR.80 Flexibility provisions within the specific context of maintenance organisations. To meet an operational need, there may be circumstances where the authorisation of non-MAML staff in certifying or support staff roles is necessary. These circumstances also extend to where it is not practical for foreign-trained personnel to obtain a MAML in the time available (e.g. short-term secondment).

8.3.5.2 Currently, the scope of guidance provided is related to the authorisation of non-MAML staff as certifying and support staff for on-aircraft maintenance.

DASR GR.80 Flexibility provisions

8.3.5.3 **Provisions.** DASR GR.80 *Flexibility provisions* includes two different avenues to enable regulated entities to deviate from the requirements of applicable DASR. These provisions are available subject to an operational need, where compliance with applicable DASR would impact the ability to meet operational objectives. The two avenues are:

1. **Achieve an equivalent level of protection under GR.80(b).** DASA may approve the deviation using the applicable DASR as the safety standard against which the deviation is assessed and approved.

Superseded

2. **Equivalent level of protection not demonstrated, but supported by the application of sound risk management, under GR.80(c).** DASA may *allow* the deviation but cannot approve it due to the absence of any established safety standard against which to approve.

8.3.5.4 **Second-order effects.** The use of DASR GR.80 provisions, including GR.80(b) which requires an equivalent level of protection, has the potential to create unintended second-order safety impacts due to the interlinked nature of the DASR (a system of systems). In each instance, the regulated entity seeking to apply these flexibility provisions should identify and address any such impacts.

8.3.5.5 **Increased safety risk.** The application of GR.80 flexibility provisions by service providers, such as maintenance organisations, may result in increased Aviation Safety risk for the relevant Military Air Operator (MAO). Affected MAOs must apply additional due diligence to activities utilising the flexibility provision for the period in which that flexibility provision is in effect, commensurate with the residual risk level. Additionally, GR.80 application does not absolve the organisation of its obligation to continue to comply with all other applicable DASR. Where GR.80 flexibility provisions have been appropriately applied, DASA will not issue a finding for non-compliance against specific DASR clauses covered by the provision.

8.3.5.6 **Remediation.** Any flexibility provision should only be continue to be in place while:

1. the operational need continues to exist; and
2. compliance with relevant DASR would continue to impact operational objectives.

8.3.5.7 **Application to DASA.** DASA expects that proposed implementation of flexibility provisions to be detailed within, or referenced by, draft amendments to the MO exposition submitted under a DASR Form 2 Application for DASR 145 and DASR M Subpart G Approval.

8.3.5.8 **Application by Defence Industry**. Defence Industry organisations may only enact DASR GR.80 provisions through their relevant Military Air Operator (MAO) as the Risk Management Authority. In the event that a MAO's operational need requires a Defence Industry MO to exercise flexibility provisions, Defence Industry would support the MAO through provision of technical considerations and controls.

Use of flexibility provisions to authorise certifying and support Staff

8.3.5.9 **Background.** As discussed in chapter 8.3.3, the DASR requires[24] that certifying staff and support staff for on-aircraft maintenance hold an appropriate MAML. DASA MAMLs are issued when an applicant provides to DASA the relevant evidence, from a DASR 147 Maintenance Training Organisation (MTO) or recognised equivalent, that basic knowledge, basic experience and applicable type training requirements have been met. Gaps in basic knowledge result in MAML exclusions – mostly aircraft system based (e.g. propulsion systems, electrical systems) – and preclude a MAML holder from issuing a CRS or acting as support staff on the excluded aircraft systems.

8.3.5.10 **Granting of MAMLs to foreign-trained personnel.** Provisions within the DASR 147 enable foreign-trained maintenance personnel to obtain a MAML by undergoing an equivalency assessment where time permits. This assessment is conducted by an approved or recognised 147 MTO and will consider knowledge and experience as well as relevant type training.

8.3.5.11 **DASA assurance of procedures and outcomes.** DASA will conduct independent safety assurance differently for DASR GR.80(b) and GR.80(c), commensurate with the level of risk exposure. However, DASA assurance for both DASR GR.80(b and GR.80(c) involves the prior assessment of the

Superseded

procedure used to authorise non-MAML staff in certifying or support staff roles. Where uncertainty exists as to the procedure's applicability or suitability in a particular instance, the DASR 145 MO (through the CAMO, on behalf of the MAO), should seek advice from DASA.

8.3.5.12 Common guidance. The maintenance organisation may choose to utilise a single procedure to address both GR.80(b) and GR.80(c) scenarios. However, the organisation must make it clear how it will meet the different aviation safety performance outcomes. In both scenarios, where practicable, the procedure should require DASA 145 MOs to seek assistance from the ADF DASR 147 MTO to assess training deficiencies and inform decisions.

DASR GR.80(b) equivalent level of protection

8.3.5.13 An application to use the GR.80(b) equivalent level of protection provision must articulate how the procedure to authorise non-MAML staff in certifying or support staff roles will provide an equivalent level of protection to that which would otherwise be attained through compliance with the relevant DASR. If DASA agrees that an equivalent level of protection is achieved through the procedural outcome, DASA will approve the exception from the DASR. DASA will apply assurance to the ongoing application of the procedure(s) through routine oversight unless the DASR 145 MO, through the CAMO (on behalf of the MAO), requests DASA independent assurance prior to the issue of an individual authorisation.

8.3.5.14 An application to DASA for approval of the GR.80(b) equivalent level of protection flexibility provision should describe a method for implementing risk controls equivalent to those inherent in a DASA MAML (e.g. categorisation, exclusions and type ratings). The procedure should require assessment of individual competency, through knowledge and experience considerations, via:

1. an approved foreign nation/service comparison process; or
2. suitable evidence against each relevant module of DASR 66 Appendix I I and relevant chapters of DASR 66 Appendix III, to the appropriate training level, for the scope of the authorisation to be given.

8.3.5.15 Utilisation of DASR GR.80(b) is likely to be complex and time-consuming, requiring detailed analysis that may not be suitable to support agile operations.

DASR GR.80(c) risk management

8.3.5.16 For DASR GR.80(c), the procedure to authorise non-MAML staff in certifying or support staff roles must demonstrate that a credible and defensible level of military aviation safety performance will be maintained through sound management of aviation safety risks arising through the deviation from applicable DASR. DASA will not approve a GR.80(c) procedure but will allow its use subject to the requirement that all instances of the organisation applying the procedure are reported to DASA at the first practical opportunity. The DASA assurance role provides an independent assessment of the credibility and defensibility of the risk-based decision that is made by the organisation.

8.3.5.17 Any application to DASA to implement a GR.80(c) *risk management* approach should address the following:

1. The seven-step risk management guidance provided in Annex A and the format and means in which it will be submitted to DASA.
2. The necessary interfaces to the MAO such that any Decisions to Proceed are appropriately documented.

Superseded

3. Where operational needs allow for prior assurance by DASA, the relevant DASA desk officer should be provided with the output of the procedure, to review prior to enactment.

4. Where operational needs do not allow for prior assurance by DASA, the procedure for authorising non-MAML certifying or support staff may still be enacted by the DASR 145 AMO (through the MAO). Retrospective DASA assurance will be applied where an ongoing operational need supports continued application of the flexibility provision.

Annex:

(a) Contextualised guidance for seven-step risk management

8.4.1 Introduction and Background

Introduction

8.4.1.1 This chapter provides additional guidance on the Military Aircraft Maintenance Licence (MAML), and for those individuals applying for a "personnel authorisation[25]" under DASR 66, how to comply with DASR 66 requirements.

8.4.1.2 DASR 66 establishes the regulations required to be met by Aircraft Maintenance Training Organisations (AMTO), responsible for either Basic or Type Training, to be eligible for a DASR Military Aircraft Maintenance Licence (MAML).

8.4.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3. Further information regarding DASR 147 is located within Volume 3, chapter 8.5.

Background

8.4.1.4 During the DASR 66/147 transition, DASA provided a number of interim arrangements which allowed the current workforce to apply for DASR 66 MAMLs, including acceptance of existing Military Aircraft Type Rating training until the DASR were fully implemented.

8.4.1.5 The DASR 66.A.70 conversion provisions were based on the Australian National Competency Training and Assessment framework. These provisions were applied to staff who held valid certifying qualifications prior to the date of these regulations being introduced.

8.4.1.6 All DASA MAMLs are based on objective evidence of an individual's Qualification, Training and Experience (QTE), against the criteria in Appendix I to DASR 66 Basic Knowledge Requirements. DASA has mapped the EMAR syllabus (Appendix I to DASR 66) to associated Australian nationally adopted Competency Based Training and Assessment Units of Competency (UoC), qualifications and non-vocational education and training (VET) service specific training. This mapping resulted in providing a DASA Category A1, A3, B1.1, B1.3 or B2 MAML, with or without exclusions and inclusions.

Superseded

8.4.1.7 The Defence Airworthiness Safety Regulations (DASR) 66 - Military Aircraft Maintenance Licencing provides Defence personnel who hold a MAML the privilege to issue Certificate of Release to Service (CRS). This regulation is based on the European Military Airworthiness Requirements Part 66 (EMAR Pt 66), but adapted to suit the Australian military maintenance environment.

8.4.1.8 DASR 66 identifies the skills and knowledge requirements for each licence category (refer MAML Categories below) by syllabi. DASA have mapped initial trade training and technical, promotion-related courses (eg Aviation Technician Supervisor Course, LSATT, CPL SUBJ 4 etc) against these syllabi.

8.4.1.9 The MAML is an attestation the holder has met the DASR 66 knowledge and experience requirements, but does not entitle the holder to issue an aircraft CRS until they are authorised within a DASR 145 Maintenance Organisation (MO) to exercise these privileges.

8.4.2 MAML Categories, Limitations and Extensions

DASR 66.A.3 - MAML Categories

8.4.2.1 There are four basic licence categories:

1. The Category A licence is a non-type rated licence for minor scheduled and unscheduled maintenance permitted within Line Maintenance (relevant tasks will be detailed in the relevant DASR 145 MOE). The privileges of a Category A licence are not applicable to Base Maintenance.

2. Category B1 - permits certification privileges for scheduled and unscheduled airframe, engine, structures, mechanical systems and electrical maintenance for more complex Line Maintenance activity. The B1 MAML also permits minor avionics maintenance (eg 'black box' changes, where no specialised support equipment is required). The B1 MAML allows for authorisations as support staff within Base Maintenance.

3. Category B2 - permits certification privileges for scheduled and unscheduled complex avionics and electrical Line Maintenance activities and allows the holder to act as B2 support staff within Base Maintenance.

   Note: The Category B1 and B2 licences are aircraft type-rated licences and permit the holder to certify the release to service only of aircraft types that are endorsed as ratings on their licence.

4. Category C - is required for personnel who issue the CRS following Base Maintenance.

   Note: The Category C licence is an aircraft type-rated licence and permits the holder to issue the CRS of an aircraft following Base Maintenance only. GM to DASR 66.A.20(a) para 3 provides more detail.

DASR 66.A.50 – Limitations and DASR 66.A.52 – Extensions

8.4.2.2 All MAMLs are managed in accordance with the DASA 66 MAML Exclusion Inclusion & Endorsement Manual, available on the DASA Website.

Superseded

8.4.2.3 The DASA 66 MAML Exclusion, Inclusion & Endorsements Manual outlines the required competency details and provides general guidance that reflects DASR 66.A.20 privileges against the S1000D system of standard numbering to specify particular Systems and Sub-systems.

8.4.2.4 Exclusions (Limitations) introduced on a MAML are omissions from an individual's certification privileges, indicating that the licence holder shall not issue a CRS in

8.4.2.5 Line Maintenance or act as B1 or B2 support staff in Base Maintenance if maintenance related to that exclusion has occurred.

8.4.2.6 Inclusions (Extensions) introduced on a MAML are additional privileges to an individual's certification privileges, indicating that the licence holder may issue a CRS or act as B1 or B2 support staff if maintenance related to that Inclusion. Noting that additional military specific systems Inclusions can be achieved through completion of all required competencies & a type course (where appropriate) which incorporates S1000D Air-vehicle system basic knowledge requirements into the type syllabus.

8.4.2.7 The S1000D is a numerical technical classification of all the systems and sub systems on an aircraft, which is largely used in aircraft engineering and maintenance, and helps to standardise data across aircraft manufacturers and programs to facilitate improved maintenance and logistics.

8.4.3 MAML Applications

DASR 66.A. 10 - Application

8.4.3.1 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex W – MAML for details.

Foreign Licence Applications

8.4.3.2 Military Aviation Authority/National Aviation Authority's (MAA/NAA) have differing training requirements for aircraft maintenance personnel based upon their sovereign regulatory maintenance framework. Therefore, there may be considerable differences in each country's licence privileges, regulations, assessment methods/framework and specific guidelines; resulting in gaps and difficulties to enable direct conversion of a foreign MAA/NAA issued licence to a DASA MAML.

8.4.3.3 Australia has nationally adopted competency-based training and assessment in lieu of EASA/ EMAR basic knowledge syllabus and examinations, which results in attainment of Units of Competency (UoC), which in turn lead to Aeroskills qualifications.

8.4.3.4 DASA has mapped these Aeroskills Mechanical and Avionics UoC against DASR 66 syllabi requirements to provide either a Category A, B1.1, B1.3 or B2 MAML, with/without exclusions and inclusions.

8.4.3.5 To enable Non-Australian competencies/qualifications to be used to apply for a MAML, a 147 Maintenance Training Organisation (MTO) RPL assessment must be performed using objective evidence to provide an individual with an RPL report clearly outlining the required theory and practical training requirements that have been met.

Aging Qualifications

8.4.3.6 All MAML applications will need to meet the following requirements:

Superseded

1. Any grandfathering formally recognised and utilised for a MAML assessment during the transitional period will be honoured and no further action is required by the individual;

2. IAW DASR 66.A.25 any training courses and examinations shall be passed within 10 years prior to the application for:

   i. a MAML; or

   ii. an addition of a category or subcategory to a MAML; or

   iii. the removal/addition of a DASA exclusion/inclusion to a MAML.

3. Qualifications 10 years or older now come into question, as not meeting the requirements of 66.A.25(b). Any of these qualifications provided as evidence for a MAML application (initial or update), will generally not be accepted unless they have been assessed and converted against DASR 66.A.25 Basic knowledge requirements by a DASA/CASA approved 147 Organisation;

4. DASA acknowledges that there may be individual unique circumstances where aging qualifications could be considered in more detail – specifically where the time and effort required for conversion to contemporary standards, by a DASA/CASA approved 147 Organisation, may not be reasonable. To support this, where aging qualifications (>10yr) are used as evidence for a MAML application (initial or update), the applicant must provide detailed justification (with supporting evidence) on why the aging qualification should be considered. This should include relevant work history for the applicant (including objective evidence of previous maintenance authorisations) and detail any factors that support the acceptance of aging qualifications without conversion. MAML applications, with aging qualifications, will be rejected if no supporting justification is provided.

5. Where there is any doubt or ambiguity regarding the requirements for a MAML, contact DASA at dasa.dcadasr66@defence.gov.au, and provide detailed evidence for DASA's consideration

8.4.4 MAML Basic Knowledge and Experience Requirements

DASR 66.A.25 – Basic Knowledge Requirements

8.4.4.1 A MAML applicant must have a demonstrated level of knowledge relevant to the MAML privileges to be granted, and in order to obtain a Category A (Line Maintenance only), B (Line & Base Maintenance) or C (Base Maintenance only) MAML. An applicant requires "Basic Knowledge" in the appropriate subject modules IAW Appendix I toDASR 66.

DASR 66.A.30 – Basic Experience Requirement

8.4.4.2 In addition to Basic Knowledge requirements (DASR 66.A.25), a MAML applicant must also have a demonstrated level of Basic Experience of the requested licence category (DASR 66.A.30). An applicant requires:

1. The practical experience must be gained in the real environment of military aircraft maintenance;

Superseded

2. Initial employment training (IET) delivered to trainees of all three ADF Services provides the minimum practical training detailed in Appendix I to DASR 66. Therefore, maintenance personnel who have completed their IET are eligible for a category A licence after six months of practical training, following completion of specific aircraft task training in accordance with DASR AMC 66.A.20(b), and having achieved syllabus Module 10 requirements.

8.4.4.3 Experience shall be acquired within 10 years preceding the initial category or subcategory.

DASR 66.A.40 - Continued validity of the MAML

8.4.4.4 All MAMLs are perpetual and will remain valid unless suspended, surrendered or revoked.

8.4.4.5 DASA has a process that allows it to assess breaches or suspected breaches of the conditions that a MAML was issued and take appropriate action. Contact DASA at DASA.DCA DASR66 for more information.

8.4.5 MAML Military Aircraft Type Rating Endorsements

DASR 66.A.45 - Military Aircraft Type Rating

8.4.5.1 In order to enact the privileges of a DASR 66 Category B (Line and Base Maintenance) MAML, MAML holders must have a specific Military Aircraft Type Rating (MATR) endorsement and be authorised by the DASA 145 nominated person (generally the Quality Manager) to operate within their approved quality system. In order to obtain a type rating, an applicant requires:

1. Type Training (Theory & Practical) (DASR 66.A.45): and
2. On the Job Training (OJT) for first Type Rating (AMC 66.A.45)

Military Aircraft Type Ratings Guidance

8.4.5.2 Refer to Chapter 8.5.8 – Military Aircraft Type Ratings for further details.

Expectations

8.4.5.3 All MATR applications must confirm that any OJT requirements are completed IAW Appendix III to DASR 66.

8.4.5.4 All MATR type training courses must be started and completed within the 3 years preceding application for the MATR.

8.4.5.5 The “Basic Training Course” requirements stated in 66.A.30 and 147.A.200 must be met before individuals are eligible for the relevant category MAML.

8.4.5.6 OJT requirements stated in Appendix III to DASR 66 must be met for first MATR in licence subcategory. Evidence of completion must be provided with the MAML endorsement application.

8.4.5.7 DASA may accept practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 – Northrop Grumman for applications for P-8A Poseidon or E-7A Wedgetail.

Superseded

8.4.6 MAML Suspension or Revocation

8.4.6.1 On receipt of notification of fraudulent or unsafe behaviour by a MAML holder, DASA will assess the information to determine what action, if any, is required.

Notice to Show Cause

8.4.6.2 Should DASA determine that a suspension or revocation of a MAML be warranted, then a Notice to Show Cause (NTSC) will be issued to the MAML holder. For procedural fairness, the affected MAML holder will be provided the reasons and evidence supporting the decision to issue a NTSC. The NTSC provides the MAML holder the opportunity to respond to the proposed suspension or revocation of their MAML.

8.4.6.3 The response to the NTSC will be assessed by DASA to determine if:

1. No action required; or
2. MAML will be suspended; or
3. MAML will be revoked.

MAML Suspension or Revocation

8.4.6.4 DASA will notify the MAML holder, and the organisation for which the MAML holder held the authorisation, of the suspension or revocation of the MAML. DASA also publishes a list of suspended MAML on the Military Aircraft Maintenance Licencing page on the DASA website.

Review of Suspension or Revocation

8.4.6.5 The organisation for which the MAML holder held the authorisation, can request DASA to review the decision. The request for review should include the results of any internal investigation and any other relevant information to support the request for a review.

8.5 Aircraft Maintenance Training Organisations

8.5.1 Introduction and Background

Introduction

8.5.1.1 This chapter provides additional guidance on the Defence Airworthiness Safety Regulations DASR 147 – Aircraft Maintenance Training Organisations (AMTO), to assist those organisations applying for a DASR 147 approval on how to comply with DASR 147 requirements.

8.5.1.2 DASR 147 establishes the regulations required by an AMTO responsible for either Basic or Type Training of DASR 66 Engineers and Aircraft Maintenance Technicians to be eligible for a Military Aircraft Maintenance Licence (MAML).

8.5.1.3 For the purpose of this chapter additional guidance does not include information already presented at Volume 2, but represents additional guidance material. Referenced content relevant to, but not directly related to, continuing airworthiness will be found in other areas of the Defence Aviation Safety Program including in other chapters of DASP Manual Volume 3

Superseded

Requirements for Aircraft Maintenance Training Organisation

8.5.1.4 The Defence Aviation Safety Regulations (DASR) requires individual DASR 147 Maintenance Training Organisations (MTOs) to define their maintenance training activities in their Maintenance Training Organisation Exposition (MTOE). The scope of maintenance training of basic knowledge and/ or Military Aircraft Type Rating (MATR) training should be in accordance with the MTO's policy and procedures defined in the MTOE.

Background

8.5.1.5 The Defence Aviation Safety Authority (DASA) and Headquarters Air Force Training Group (HQAFTG) have agreed that the primary framework to meet the DASR 147 requirements for the training of ADF personnel is through the creation of a single Air Domain MTO.

8.5.1.6 The single Air Domain MTO will:

1. leverage existing Joint and Single Service Individual Education and Training governance arrangements to provide an efficient and standardised governance approach for Australian Defence Organisation (ADO) aviation maintenance training.
2. align with the Defence Registered Training Organisation (DRTO) framework to enable standardisation against benchmarked Australian Skills Quality Authority (ASQA) standards.
3. provide a single point of accountability for aviation maintenance training, which will provide better holistic oversight that safety outcomes are being achieved.
4. provide the simplest path to the provision of recognition of Defence Maintenance Training by civil regulators and foreign militaries.

8.5.1.7 Commercial organisations that deliver aircraft maintenance training, either initial technical training (basic training) or Military Aircraft Type Training to meet DASR 66 requirements will be recognised by DASA if they:

1. already have a Part 147 Approval issued by a DASA- recognised Civil Aviation Authority (CAA)/ Military Aviation Authority (MAA); or
2. are included within the Air Domain MTO; or
3. are issued a discrete DASR 147 Approval, where they provide aviation maintenance training to DASR 145 organisation(s), but do not train ADF personnel.

8.5.1.8 The Air Domain MTO includes military aircraft type training courses delivered by Army Aviation Training Centre (AAvnTC), the Navy Training Authority – Aviation (TA-AVN) and the Air Force – Force Element Groups (FEGs). Basic aviation knowledge training delivered by RAAF School of Technical Training (STT) is also included under the Air Domain MTO.

Application to become an MTO

8.5.1.9 Refer to DASPMAN Volume 3, Chapter 5.3 – Annex I – MTO for detailed guidance on the application process.

Superseded

8.5.2 Facility and Equipment Requirements

8.5.2.1 This regulatory provision outlines the facility requirements for a DASR 147 Aircraft Maintenance Training Organisation (AMTO) and contains several sub-sections, which detail the requirements that AMTOs must meet in terms of facilities, equipment and resources.

Facility Standards

8.5.2.2 AMTOs are to provide adequate facilities, equipment and tools to conduct training. AMTOs must ensure that their facilities meet the appropriate standards for classroom space, simulator training areas and other areas necessary for conducive aviation maintenance training. Additionally, AMTOs must have facilities for storage of maintenance tools, equipment and parts.

Workshop Standards

8.5.2.3 Workshops must be equipped with tools, equipment and materials necessary to perform the practical tasks required by the relevant training courses. AMTOs must have appropriate facilities for the storage, testing and calibration of equipment used in the maintenance of the aircraft.

Training Equipment

8.5.2.4 Training equipment must be maintained and calibrated to ensure that it is safe and effective for use in training. AMTOs must ensure that they have the appropriate equipment for training in various aspects of aircraft maintenance including aircraft systems, avionics, structures and powerplant maintenance.

Library Facilities

8.5.2.5 AMTOs are to provide access to relevant aviation related reference materials, manuals and other resources necessary for aviation maintenance training. AMTOs must ensure that their libraries are up to date and have a wide range of materials that are relevant to the training courses they offer.

Computer Facilities

8.5.2.6 AMTOs are to have computer facilities that provide access to relevant aviation related software, databases and other tools necessary for effective aviation maintenance training. AMTOs must ensure that their computer facilities have up to date software and hardware as well as high-speed internet connections.

8.5.3 Personnel Requirements

Personnel Requirements

8.5.3.1 This section specifies the personnel requirements for management personnel employed by DASR 147 AMTOs. The organisation must have sufficient management personnel to ensure the effective management of its operations. The management personnel must be qualified, experienced and possess the necessary skills to oversee the organisation's activities and ensure compliance with all relevant regulations and standards. This includes an Accountable Manager who has overall accountability for the organisation's compliance with DASR regulations and will appoint other necessary resources to accomplish training commitments. The regulation includes requirements for

Superseded

different types of personnel, including management personnel, technical personnel, quality personnel, training personnel, and support personnel.

Records of Instructors, Examiners, Assessors and Invigilators

8.5.3.2 DASR 147.A.110 requires approved maintenance training organisations (AMTOs) in Australia to maintain records of instructors, examiners, and assessors. The records must contain specific details about the personnel including:

1. **Personal Details:** Personal details of the instructor, examiner, or assessor, including their full name, date of birth, and contact information.
2. **Qualifications:** Details of the instructors, examiners, or assessor's qualifications, including the type of qualification, the date it was obtained, and the organisation that issued it.
3. **Experience:** Details of the instructors, examiners, or assessor's experience, including the type of experience, the duration of experience, and the organisation where the experience was gained.
4. **Training:** Details of the training received by the instructor, examiner, or assessor, including the type of training, the duration of training, and the organisation that provided the training.
5. **Authorisations:** Details of any authorisations held by the instructor, examiner, or assessor, including the type of authorisation and scope, the date it was issued, and the organisation that issued it.
6. **Currency:** Details of the instructors, examiners, or assessors currency, including the type of currency, the date it was last achieved, and the date it is due to expire.
7. **Performance:** Details of the instructor's, examiner's or assessor's performance, including any relevant feedback or reviews and professional development plan.
8. **Relevant Training Material:** Details of any relevant training material that the instructor, examiner, or assessor has access to or uses in the performance of their duties.
9. **Verification of Competence:** Details of any verification of competence conducted on the instructor, examiner, or assessor, including the type of verification, the date it was conducted, and the organisation that conducted it.
10. **Compliance:** Details of the instructor's, examiners, or assessor's compliance with all relevant regulations and standards.

8.5.3.3 AMTOs can ensure that their personnel are qualified, competent, and authorised to perform their duties, and comply with all relevant regulations and standards.

Key Personnel Requirements

8.5.3.4 The qualification and experience of the instructors, knowledge examiners, practical assessors and invigilators are fundamental to ensuring the quality of a training course – only appropriately qualified personnel should be appointed to carry out training and examinations. In addition to the published Acceptable Means of Compliance (AMC) and Guidance Material (GM) to DASR 147.A.105(f), the following information provides additional guidance on the knowledge and

Superseded

skills that are expected of authorising instructors, knowledge examiners, practical assessors and invigilators employed by a DASR 147 Maintenance Training Organisation (MTO).

Instructors

8.5.3.5 A nominated person who will deliver a DASR 66 module or unit of competency (DASR 66 appendix I), a DASR 66 element (DASR 66 appendix III), or part thereof either of these. The instructor is not necessarily the person involved in drafting of the course material (content, duration, etc.), however they should be involved in the continued development of the lessons themselves (creation of the instructor notes, slides, sequencing, etc.).

8.5.3.6 Instructors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Pedagogic – should know how to organise a lesson and how to efficiently deliver a course that clearly highlights the fundamental points. They should also be able to adapt when communicating to a particular audience including with pre-existing knowledge/experience.
3. Able to promote the appropriate attitude towards regulation and procedures; in particular the strict adherence to approved maintenance practices and quality standards through the lens of their own experience in a regulated aviation environment.
4. Familiar and proficient with the tools and training techniques used by the training organisation to deliver lessons.
5. Appropriately experienced in the aircraft maintenance environment.
6. Able to demonstrate good knowledge, complimented with communication skills in the English language.
7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
8. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directives, Service Bulletin, Maintenance Programme, etc.).
9. In receipt of continuous training in the company's procedures and DASRs.

Knowledge Examiners

8.5.3.7 A nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, unit of competency, element, or part thereof. The function may include the drafting and/or the selection of questions (Multi-Choice Questions and Essays), the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgement regarding the level of knowledge demonstrated by the trainee.

8.5.3.8 Persons solely supervising an exam session are not considered as examiners but are considered as support staff invigilators and, in this context, are not subject to knowledge and

Superseded

experience requirements, but need to be trained to the examination procedure described in the MTOE.

8.5.3.9 Knowledge examiners should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO, including the examination standards required by DASR 66.
2. Able to demonstrate a responsible attitude to the conduct of examinations, so that the highest integrity is ensured.
3. Trained in contemporary examination techniques and able to conduct an examination in such a way that the true abilities of the candidate are demonstrated.
4. Able to remain neutral at all times and behave in a manner that will not influence or prejudice the final result of the examination, for example by providing undue assistance or clarification to a candidate.
5. Familiar and proficient with the tools or the examination techniques used by the training organisation to perform the exams.
6. Appropriately experienced in the aircraft maintenance environment.
7. Able to demonstrate good knowledge, complimented with communication skills in the English language.
8. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.
9. Able to demonstrate good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).
10. In receipt of continuous training in company's procedures and DASRs.

Practical Assessors

8.5.3.10 A nominated person who will determine the level of practical knowledge/practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and/or the selection of practical tasks, the performance oversight and assessment of the practical activities. Practical assessors should be:

1. Conversant with the DASR 66, 145 and 147 regulations, AMC, GM and specific procedures (MTOE, instructions, etc.) that are assigned to their scope of approval within a DASR 147 MTO.
2. Experienced and show solid judgement regarding the abilities of the assessed trainees – the assessor should have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks in compliance with current regulation, approved procedures, maintenance practices, etc.
3. Trained to contemporary assessment techniques. The assessor should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated.

Superseded

4. Familiar and proficient with the tools or the techniques used by the training organisation to assess the practical abilities of trainees (maintenance simulators, mock up, etc.).

5. Appropriately experienced in the aircraft maintenance environment.

6. Able to demonstrate good knowledge, complimented with communication skills in the English language.

7. Able to demonstrate a good understanding of the workplace environment, human performance and safety culture.

8. Able to demonstrate a good knowledge of technical publications (Aircraft Maintenance Manual, Component Maintenance Manual, Airworthiness Directive, Service Bulletin, Maintenance Programme, etc.).

9. In receipt of continuous training in company's procedures and DASRs.

10. Able to act safely, apply safety precautions and prevent dangerous situations.

11. Able to demonstrate knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by DASR-66 Appendix, practical training elements that cannot be imparted through simulation devices, etc.).

12. Able to demonstrate an understanding of the aircraft systems interaction.

13. Able to navigate, execute and obey the prescribed maintenance procedures.

Invigilators

8.5.3.11 A nominated person who will ensure the correct conduct of an examination in accordance with the examination procedures of the DASR 147 organisation. The invigilator is responsible for ensuring that examinations are conducted in accordance with the MTOE and Training Procedures and operates under the direction, responsibility and delegation of the Training Manager. The organisation can nominate permanent exam invigilators who should then be listed in MTOE Part 1 and qualified in accordance with Training Procedures.

8.5.3.12 Training organisations often delegate the invigilation of an examination to staff not listed as an examiner for the particular subject. These "invigilators" do not need to be qualified to the same extent as an examiner, and in particular, they do not need to demonstrate specialty knowledge, as long as their duty is strictly limited to the conduct of the examination itself.

8.5.3.13 Invigilators should however be trained to the organisation's examination procedures with a specific emphasis on the exam's integrity aspects and on the handling of cheating or misconduct cases. Such staff should be listed by the organisation with records of their training kept in the individual's personnel file.

Assessment and acceptance of staff

8.5.3.14 Assessment and acceptance of instructors, examiners and assessors should be performed, and documented by the approved training organisation in accordance with dedicated procedure described in the MTOE. Appropriate staff in the maintenance training organisation should physically interview proposed candidates in order to ensure their competency. Once completed, detailed result of this assessment, including any supporting documents (diplomas, DASR 66 licence, etc.) should be

Superseded

filed in accordance with MTOE procedure. The staff should be listed in MTOE with intended scope of instruction, examination or assessment.

Continued qualification

8.5.3.15 The qualification criteria and experience requirements only address the initial acceptance of instructor, examiners and assessors. The training organisation should develop and document a program in MTOE to ensure the continued competence of these staff.

8.5.4 Instructional Equipment Requirements

8.5.4.1 DASR 147.A.115 requires approved maintenance training organisations (AMTOs) to ensure that they have appropriate instructional equipment available to support their training activities. Here are some important points that must be considered when meeting this regulation:

1. **Type of Equipment:** The equipment must be appropriate for the type of training being delivered. This includes a wide range of equipment such as applicable aircraft, training aids, simulators, and computer-based training tools.
2. **Condition:** The equipment must be in good working order, and any faults or defects must be promptly rectified.
3. **Calibration:** The equipment must be calibrated as required, and records of calibration must be maintained.
4. **Availability**: The equipment must be readily available for use when required, and there must be sufficient equipment available to support the number of students being trained.
5. **Security:** The equipment must be stored securely when not in use, and access to the equipment must be controlled to prevent damage or misuse.
6. **Maintenance:** The equipment must be regularly maintained, and records of maintenance activities must be maintained.
7. **Training Material**: The equipment must be used in conjunction with appropriate training material to support effective learning.
8. **Compliance:** The equipment must comply with all relevant regulations and standards.
9. **Training for Equipment Use:** Instructors and trainers must be trained in the correct use of the equipment and any associated software or training materials.
10. **Upgrades and Replacements:** Equipment should be upgraded or replaced as necessary to ensure that it remains effective and meets current training requirements.

Aircraft Maintenance Training Aids

8.5.4.2 These are physical devices used to simulate or replicate various components or systems of an aircraft. For example, a training aid may be used to teach students how to inspect and troubleshoot an engine. Important points to consider for training aids:

1. The training aid must accurately represent the aircraft component or system being taught.

Superseded

2. The training aid should be durable and long-lasting.

3. The training aid should be kept clean and well-maintained.

8.5.4.3 **Computer-Based Training Tools:** These are software applications or programs that are used to deliver training material to students. For example, a computer-based training tool may be used to teach students how to use a maintenance management system. Important points to consider for computer-based training tools:

1. The software should be up-to-date and compatible with the AMTO's computer hardware.

2. The software should be easy to use and navigate.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.4 **Simulator Devices:** These are devices that replicate real-world situations or scenarios to provide hands-on training to students. For example, a simulator may be used to teach students how to perform a maintenance task on an aircraft. Important points to consider for simulator devices:

1. The simulator should accurately represent the real-world situation or scenario being taught.

2. The simulator should be well-maintained and regularly calibrated.

3. The AMTO should have a system for monitoring and tracking student progress.

8.5.4.5 **Training Videos and Audio Recordings:** These are pre-recorded videos or audio recordings that are used to deliver training material to students. For example, a training video may be used to teach students about safety procedures.

8.5.4.6 Important points to consider for training videos and audio recordings:

1. The video or audio recording should be up-to-date and relevant to the training being provided.

2. The AMTO should have a system for monitoring and tracking student progress.

3. The AMTO should ensure that the video or audio recording is of high quality and easy to understand.

8.5.5 Maintenance Training Material

8.5.5.1 DASR 147.A.120 requires approved maintenance training organisations (AMTOs) to develop and use maintenance training material that is appropriate for the type and level of training being delivered. DASR 66 specifies requirements for both basic and type course training material. Here are some important points to consider for each Basic course training material:

1. The training material used for basic courses must cover a broad range of topics and must be suitable for entry-level students. The following are some important points to consider when developing or using training material for basic courses:

    i. The training material must cover the theoretical and practical aspects of the aircraft, system, or component being taught.

Superseded

ii. The training material must be easy to understand and follow.

iii. The training material must include practical exercises that reinforce theoretical knowledge.

iv. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.

v. The training material must be appropriate for the level of experience and education of the students being trained.

Type Course Training Material

8.5.5.2 The training material used for type courses must cover the specific make and model of the aircraft, system, or component being taught. The following are some important points to consider when developing or using training material for type courses:

1. The training material must cover all relevant aspects of the aircraft, system, or component, including maintenance, inspection, troubleshooting, and repair.
2. The training material must be regularly reviewed and updated to ensure that it remains relevant and accurate.
3. The training material must be appropriate for the level of experience and education of the students being trained.

8.5.5.3 Some additional important points to consider when developing or using maintenance training material include:

1. The training material must be structured in a logical and organized manner.
2. The training material must be consistent with the relevant regulations and standards.
3. The training material must be presented in a manner that is engaging and interesting for students.
4. The AMTO must have a system for tracking and monitoring the use of training material, including the progress and performance of students.

8.5.5.4 By meeting the requirements of DASR 147.A.120, AMTOs can ensure that they are providing high-quality maintenance training material that is appropriate for the level and type of training being delivered. This can help to ensure that students receive the knowledge and skills they need to perform maintenance tasks safely and effectively.

8.5.6 Examinations

8.5.6.1 DASR 147.A.135 specifies the requirements for conducting examinations for aircraft maintenance training organisations (AMTOs) to ensure that their students have the necessary knowledge and skills to perform their maintenance duties effectively and safely. Here are some key points regarding the examination requirements:

Examination Development

Superseded

8.5.6.2 The AMTO should develop examination questions that are aligned with the training objectives and outcomes. The questions should be designed to test the knowledge and skills that the student has acquired during the training program. The AMTO should also ensure that the examination questions are reviewed and approved by qualified personnel.

Examination Administration

8.5.6.3 The AMTO should have procedures in place for administering examinations. This includes ensuring that students are aware of the examination format, rules and regulations, and any special instructions that apply. The AMTO should also ensure that the examination environment is conducive to learning and that the examination is conducted in a fair and unbiased manner.

Examination Security

8.5.6.4 The AMTO should have procedures in place for ensuring the security of all the question, examinations and databanks. Particular attention should be made to the storage and transportation of the examination between venues and whilst onsite. Care must be taken to ensure the examination questions are secure at all times. Electronic means of storage may be utilised where available, providing that suitable security arrangements are in place.

Examination Grading

8.5.6.5 The AMTO should have procedures in place for grading and evaluating examination results. The grading procedures should be fair, consistent, and transparent, and should be based on established criteria. The AMTO should also ensure that examination results are communicated to students in a timely manner and that students have access to feedback on their performance.

Examination Records

8.5.6.6 The AMTO should maintain records of examination results, including the student's performance and any relevant feedback. These records should be kept in a secure location and retained for a specified period of time in accordance with regulatory requirements (e.g. Annex A to AMC 147.A.125)

Examination Review

8.5.6.7 The AMTO should have procedures in place for reviewing and evaluating examination results to identify any areas where improvements can be made. This includes analysing trends in examination results, identifying areas where students are struggling, and taking corrective actions to improve the effectiveness of the training program.

8.5.6.8 In summary, the examination requirements outlined in DASR 147.A.135 are designed to ensure that the AMTO's training program is effective and that students have the necessary knowledge and skills to perform their maintenance duties safely and effectively. By following these requirements, the AMTO can maintain a high standard of training and contribute to the overall safety of the aviation industry.

8.5.7 Training Procedures and Quality System

8.5.7.1 DASR 147.A.130 requires Aircraft Maintenance Training Organizations (AMTOs) to establish and maintain effective training procedures and a quality system to ensure that their training programs are of a high standard and meet the requirements of all applicable regulations and standards

Superseded

including DASRs. Some important points to be considered when developing or maintaining training procedures and a quality system are:

Training Procedures

8.5.7.2 The training procedures must include a description of the training program, including the objectives, scope, and content of the training. This should include the methods and materials used for training, the sequencing of the training, and the assessments used to measure the effectiveness of the training.

Courseware

8.5.7.3 The AMTO should have a system in place to develop, review, and update courseware, including lesson plans, training manuals, visual aids, and other materials used for training. The courseware should be reviewed and updated regularly to ensure that it remains relevant and effective.

Instructor Qualifications and Training

8.5.7.4 The AMTO should have procedures in place to ensure that their instructors are qualified and competent to deliver the training. This includes requirements for instructor qualifications and training, such as experience in the industry, knowledge of the subject matter, and teaching skills. The AMTO should also have a system in place to regularly assess the performance of their instructors and provide them with feedback / training as necessary.

Assessment Procedures

8.5.7.5 The AMTO should have a system in place to assess the effectiveness of their training, including the use of assessments and evaluations to measure the knowledge and skills of the students. The assessments should be designed to provide a fair and accurate measure of the student's performance, and be reviewed and updated regularly to ensure that they remain valid and reliable.

Quality System

8.5.7.6 The AMTO should have a quality system in place to ensure that their training program meets the requirements of DASRs and any other applicable regulations and standards. This includes procedures for monitoring and evaluating the effectiveness of the training by identifying, correcting and preventing recurrence of any deficiencies and continuously improving the training program.

8.5.7.7 Some additional important points to consider when developing or maintaining training procedures and a quality system include:

1. The AMTO should ensure that all training is conducted in a safe and secure environment, and that appropriate safety procedures are followed at all times.
2. The AMTO should ensure that their training programs are accessible to all students and meet their needs.
3. The AMTO should ensure that all training is conducted in accordance with relevant laws and regulations including those related to privacy and data protection.
4. The AMTO should ensure that all training is conducted in a professional and ethical manner, and that all students are treated fairly and with respect.

Superseded

Quality Policy

8.5.7.8 The AMTO should have a quality policy that outlines the organisation's commitment to quality and its goals for maintaining a high standard of training. The policy should be communicated to all staff and stakeholders, and reviewed and updated regularly.

Quality Objectives

8.5.7.9 The AMTO should establish quality objectives that are measurable and aligned with the goals of the organisation. The objectives should be reviewed and updated regularly, and progress towards meeting the objectives should be monitored.

Document Control

8.5.7.10 The AMTO should have a system in place to manage and control documents related to training procedures and the quality system. This includes procedures for document creation, control, review, approval, distribution and revision.

Record Keeping

8.5.7.11 The AMTO should maintain records related to the training programs and the quality system, including records of student performance, instructor qualifications, audit results, corrective actions taken, and other relevant information.

Records of Students

8.5.7.12 DASR 147.A.125 requires approved maintenance training organisations (AMTOs) to maintain accurate and complete records of their students. These records must include a variety of information to demonstrate that the student has successfully completed the required training and has the necessary knowledge and skills to perform maintenance tasks safely and effectively. Here are some important points to consider when developing or maintaining student records:

1. Student Identification: The record must include the student's full name, date of birth, contact information, and any relevant identification numbers or codes.
2. Training History: The record must include a detailed history of the student's training, including the courses they have completed, the date of completion, and the grade they received. This information should also include any remedial training or retesting that was required.
3. Assessment Records: The record must include documentation of any assessments or examinations the student has completed, including the results and any feedback or comments provided by the examiner.
4. Attendance and Absences: The record must include information on the student's attendance and any absences from training, including the reason for the absence and any make-up training that was required.
5. Certification: The record must include information on any certifications the student has received as a result of their training, including the type of certification, the date it was issued, and any restrictions or limitations.
6. Other Relevant Information: The record should also include any other relevant information about the student, such as their prior education or experience in the field

Superseded

of maintenance, any disciplinary actions taken, or any other notable achievements or accomplishments.

7. Some additional important points to consider when developing or maintaining student records include:

   i. The record must be maintained in a secure and confidential manner to protect the privacy of the student.

   ii. The record must be accurate, complete, and up-to-date at all times.

   iii. The record must be available for review by relevant authorities, such as regulatory agencies or potential employers.

   iv. The AMTO must have a system in place to ensure that student records are regularly reviewed and updated as necessary.

8.5.7.13 By meeting the requirements of DASR 147.A.125, AMTOs can ensure that they are maintaining accurate and complete records of their students, which can help to demonstrate that the students have received the necessary training and are qualified to perform maintenance tasks safely and effectively.

Corrective and Preventive Actions

8.5.7.14 The AMTO should have a system in place to identify and address non-conformities or areas where the procedures and system can be improved. This includes procedures for taking corrective and preventive actions to avoid recurrence including causal or root cause analysis, tracking and monitoring the effectiveness of the actions taken, and documenting the results.

Management Review

8.5.7.15 The AMTO should conduct regular management reviews of the training procedures and quality system to ensure that they are effective and meeting the goals of the organisation. The management review should include a review of audit results, quality objectives, corrective and preventive actions, and other relevant information.

Audit Procedures

8.5.7.16 Auditing is an important part of ensuring that the training procedures and quality system of the AMTO are effective and meeting the requirements of the applicable regulations. Audits should be conducted by an independent auditor, who can be an internal auditor or an external auditor.

Internal Auditing

8.5.7.17 The AMTO should conduct internal audits of their training procedures and quality system on a regular basis to ensure that all aspects of DASR 147 compliance are checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan. The purpose of internal audits is to identify any non-conformities or areas where the procedures and system can be improved. The results of the internal audits should be documented and corrective actions should be taken to address any non-conformities.

External Auditing

Superseded

8.5.7.19 The AMTO should also undergo external audits by an independent auditor, who is not part of the AMTO organisation. The purpose of external audits is to ensure that the training procedures and quality system of the AMTO are in compliance with the requirements of the regulation. The results of the external audits should be documented, and any corrective and preventive actions that need to be taken should be identified and addressed.

8.5.7.20 By meeting the requirements of DASR 147.A.130, AMTOs can ensure that their training programs are of a high standard and meet the requirements of the regulation, which can help to ensure the safety and effectiveness of maintenance operations in the aviation industry.

8.5.8 Military Aircraft Type Ratings

Introduction

8.5.8.1 Military Aircraft Type Rating Training consists of theory and examination, practical and assessment, plus On-the-Job Training (OJT) – see DASR 66.A.45(c) – for first aircraft in licence category/subcategory. Any subsequent Military Aircraft Type Rating (MATR) within the same category/sub-category require both theory and practical elements but will only require further OJT if stipulated by DASA during the approval of the course.

Note: A minimum of only theory and examination is required for the Category C Military Aircraft Maintenance Licence (MAML) rating (AMC 66.A.45).

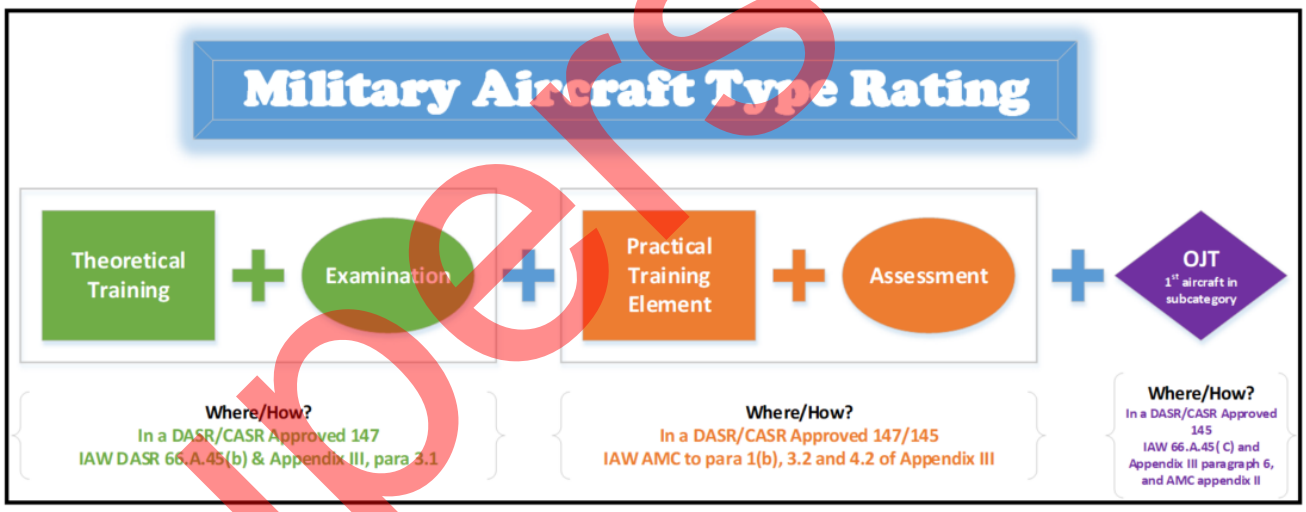


Figure 1: Military Aircraft Type Rating (MATR) - Required Elements

Privileges

8.5.8.2 In order to be entitled to exercise certification privileges for B and C categories on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings.

ADF Course Design and Development

Superseded

8.5.8.3 To ensure consistency across all ADF courses, the design and development of courses, including the course curriculum, should follow the System Approach to Defence Learning (SADL) – see SADL Website.

MATR Course – Initial Approval / Change Management

8.5.8.4 In order to facilitate approval by the authority, the following relevant DASR Forms are to be completed and submitted as appropriate:

1. DASR Form 12 - Application for DASR 147 Initial-Changes of Approval. The DASR Form 12 is the official DASA form to apply for a DASR 147 Maintenance Training Organisation approval. This form is considered part of an application pack and should be submitted with the appropriate evidence as detailed within the form to support the application.

2. DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval. The DASR Form 12A is to accompany the DASR Form 12 when the application is for an initial course approval. For an update to an existing approved course, only the completed Form 12A and associated evidence documents are required for submission.

8.5.8.5 As a minimum standard, the following documents must be submitted as evidence for MATR courseware approval:

1. Training Needs Analysis (TNA) or equivalent as accepted by DASA
2. Completed DASR 66 Appendix III MATR Courseware Assessment Matrix
3. MATR Theory Element (Learning Management Plan)
4. MATR Practical Element (Practical Training Logbooks)
5. On-The-Job-Training (OJT) logbook.

DASA Notification Requirements

8.5.8.6 Changes to MATR Courses shall be defined as either a Major or Minor Change.

8.5.8.7 A Major Change is any amendment, alteration or change to a MATR Course that is not accurately categorised as a Minor Change within the relevant Maintenance Training Organisation (MTO) Exposition procedure. A DASR Form 12A - Military Aircraft Type Rating Initial/Change Course Approval must be submitted and approved prior to any Major Change to a MATR Course.

8.5.8.8 A Minor Change is any amendment, alteration or change to a MATR Course that does not affect the DASR related approval. Minor Changes may be acceptable to DASA without prior approval by the Authority; contingent to endorsement by the relevant MTO QMS that no adverse material effect is posed to safety, quality of training or the knowledge, skills and attitudes of course graduates, course learning outcomes or location.

8.5.8.9 An internally reportable process for approval of Minor Changes to MATR Courseware must be included within the relevant MTO Exposition/Annex; containing either a specific predefined listing of all actions, or defining statement considered by the MTO to fall within the scope of a 'Minor Change'.

8.5.8.10 Subject to the endorsement of the MTO QMS, listed actions could include (but are not limited to):

Superseded

1. Grammatical and typographic changes

2. Changes that incorporate updates from the relevant platform specific technical publications (e.g. updated maintenance procedures, configuration changes etc.)

3. Changes of content (provided the learning outcomes are not affected).

Theoretical Element of the Military Aircraft Type Rating Training

8.5.8.11 The theoretical element of the Type Course shall provide the person with detailed theoretical knowledge of the applicable systems, structure, operations, maintenance, repair, and troubleshooting of the aircraft type according to the approved maintenance data, including:

1. The appropriate use of manuals and approved procedures, including any relevant inspections and limitations;

2. How to perform system, power-plant and component functional checks as specified in the maintenance manual;

3. Related information for the purpose of making decisions in respect of fault diagnosis and rectification within the scope of the maintenance manual;

4. Describing procedures for replacement of components unique to the aircraft.

8.5.8.12 Theory training shall be conducted by an appropriately approved DASA 147 MTO or an organisation recognised by DASA.

8.5.8.13 In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA.

8.5.8.14 Theory training shall have been started and completed within the 3 years preceding the application for a MATR endorsement.

8.5.8.15 The minimum pass mark for the theoretical exam is 75%.

8.5.8.16 The theoretical type training shall describe how the type training is delivered (i.e. classrooms, training equipment, instructors qualifications, TNA etc.) meeting the requirements of DASR 66 and 147, as appropriate.

8.5.8.17 The course content and duration shall be demonstrated by:

1. a detailed curriculum showing the levels for each chapter of the type training, which should be assessed for equivalence to Appendix III to DASR 66 for the relevant certifying staff category; and

2. verifying that both content and duration are justified through a comprehensive TNA (or equivalent as accepted by DASA).

8.5.8.18 Evidence is required for the following elements:

1. the teaching methods and instructional equipment;

2. the material and documentation provided to the student;

3. the qualification of instructors, examiners;

Superseded

4. the documentation and records provided to the student to justify the satisfactory completion of the training course and related assessment.

Note: For further information about these elements, refer to the MTO exposition.

Practical Element of the Military Aircraft Type Rating Training

8.5.8.19 Practical training is a structured training activity that consolidates the knowledge gained during the theoretical phase of type training and as such, may be performed after or integrated within the theory training. Practical training should:

1. Address the different parts of the aircraft and its associated engines, which are representative of the structure, the systems/components installed and the cabin.
2. Include the use of technical manuals, maintenance procedures and the operational interfaces with the aircraft (e.g. FMC, electronic flight bag, etc.)
3. Include common maintenance and ground handling activities.
4. Cover both type specific and generic safety elements of the aircraft's maintenance.
5. Develop the student's competence in performing safe maintenance, prior to the practical assessment.

8.5.8.20 The purpose of practical training is not to include all the maintenance tasks associated with a particular type, but a representative sample of them that will allow the student to acquire the required knowledge, attitude and skills to safely carry out maintenance on that type.

8.5.8.21 The practical element of the MATR Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

8.5.8.22 Practical training may be performed either following or integrated with the theoretical elements however, it should not be performed before theoretical training.

8.5.8.23 Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.24 Table 1 summarises the MATR Training requirements contained in DASR 66.A.45, and Appendix III to DASR 66.

Military Aircraft Type Rating Training requirements		
Aircraft Group	**B1/B2 MAML**	**C MAML**
All military aircraft are considered to be complex motor-powered aircraft	**Military Aircraft Type Rating Training:** Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence category/subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by DASA)	**Military Aircraft Type Rating Training:** Theory + examination Note: In the case of a Category C person qualified by holding an academic degree as specified in DASR 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by DASA

Table 1: Military Aircraft Type Rating Training requirements

Superseded

8.5.8.25 IAW AMC to Para 3.2 of Appendix III to DASR 66 - "The practical training may include instruction in a classroom or in simulators, but part of the practical training should be conducted in a real maintenance, or manufacturer, environment." It would be acceptable to complete practical training in a classroom or in simulators, if the practical training could be effectively delivered in this environment.

1. Practical training conducted in a real maintenance environment implies practical training on live aircraft or high fidelity maintenance training aids that are representative of the live aircraft. Practical training in a real maintenance environment should always be conducted on the highest fidelity training device reasonably available and include the use of maintenance data and specialist tooling.

2. Practical training should always be conducted in a real maintenance environment, where it is:

    i. the only reasonable method due to the complexity of the task, or

    ii. the only method available to enable familiarity with component location/ identification, or

    iii. the only method available to demonstrate the use of special equipment / tools.

8.5.8.26 Para 3.2 g. of Appendix III to DASR 66 states “The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work…”. In the context of practical elements of the military aircraft type training, competence to perform safe maintenance, inspections and routine work does not require the actual performance of the maintenance (e.g. it is acceptable to use a live aircraft as a training aid without physical removal / installation of components). Practical training could be a visit to / walk around of an aircraft in the maintenance environment, identifying specialised tooling / equipment used on the aircraft, process walkthroughs for removal / installations tasks, and scenario based activities for troubleshooting. Practical training should also ensure students are knowledgeable in the use of technical literature, documentation, specialised tooling and test equipment.

8.5.8.27 Selected tasks should consist of a group of representative maintenance tasks drawn from the type training and examination curriculum, at the indicated level and shall cover all the relevant chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.

8.5.8.28 The task curriculum must:

1. Be distributed in order to cover all applicable S1000D chapters.

2. Include all of the task categories (LOC, FOT, SGH, R/I, MEL, TS - Refer table 2 below) and may include others deemed appropriate to the type (e.g. ‘INS’pection, ‘ADJ’ustment).

3. Include an appropriate number of tasks in each task category for the aircraft type’s training requirements to be met.

4. Be sufficient to cover at least 50% of the crossed tasks in Appendix III to DASR 66 para 3.2. (Refer to “How should the 50% of tasks required for practical training be selected?” below).

Note: for further information on the S100D Specification refer to the following links on the DASA website. S1000D - International specification for technical publications.

Superseded

8.5.8.29 The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR 66 is completed.

8.5.8.30 A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.

8.5.8.31 The practical element (for power-plant and avionics systems, armaments, escape systems and other relevant military-specific systems) of the MATR Training may be subcontracted by the approved DASA 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

How should the 50% of tasks required for practical training be selected?

8.5.8.32 When selecting the tasks, the usage of a filtering method based on the criteria similar to that described in AMC to paragraph 3.1(d) of Appendix III to DASR 66, point 5f) is recommended.

8.5.8.33 The selection of 50% of tasks cannot be selected according to the glossary only (e.g. LOC, FOT, SGH, R/I, etc.):

1. Paragraph 3.2 of Appendix III to DASR 666 states that 'the tasks selected shall be representative of the aircraft and systems both in complexity and diversity'. In addition, the practical training should particularly address the tasks which cannot be explained by theoretical training only. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and completed as appropriate to the aircraft type.

2. Guidelines on complex / simple tasks (taken from CASA AMC/GM Part 66, V7.4 of December 2024) are as follows:

   i. Complex tasks may have the following attributes:
   - involve several comprehensive steps to perform
   - have multiple decision points in order to complete
   - may use specialised test equipment
   - often requires more than one person to perform
   - have direct impact on flight safety

   ii. Simple tasks may have the following attributes:
   - does not use specialised test equipment
   - can be completed by a single person
   - does not require any in-depth skill/knowledge
   - does not involve decision steps (no troubleshooting)
   - may involve an on-board maintenance system BITE check to determine serviceability

3. How each task is selected (LOC, SGH, etc.), should be based upon the potential gains for the students' competency or its impact on safety. Availability should not be a

Superseded

reason to omit a pertinent task and consideration should be made to include a 'real maintenance environment' to complete an important or critical learning objective.

4. All pertinent sub-tasks, associated with the safe completion of each main task, such as Isolating mechanical/electrical systems, opening/closing CBs, locking flight controls, etc., should be included and the applicable aircraft maintenance manuals used.

5. Regarding the way to read the table in paragraph 3.2, each line aims to cover each of the main systems so that no line relevant to the particular aircraft type should be omitted in the selection. Inside each line applicable to the aircraft type, half or more of the crosses can be selected. From a learning point of view, selecting 2 simple tasks as LOC and SGH would not be "representative", while selecting LOC and TS, for example, would be much more appropriate of the aircraft and systems both in complexity and diversity.

6. The intent of the following tables are to provide a compliance report demonstrating that the practical type training meets the standard required by Appendix III to DASR 666. In particular, the tables shall indicate the percentage of tasks effectively performed against the tasks contained in the Appendix III to DASR 66 which are applicable to the aircraft type.

8.5.8.34 The following tables have been developed as a guide for assessment of MATR practical courseware elements. These tables are included in the MATR courseware assessment which can be found at the following link - DASR 66 Appendix III MATR Courseware Assessment Matrix. This assessment matrix should be completed by the MTO delivering the MATR practical type training in order to enable approval of courseware by the authority.

Percentage by Task Type

Type of task	Number of tasks applicable to the A/C type	Total number of tasks selected	Percentage (%) effectively performed against applicable tasks (should be at least 50% of the applicable tasks)
LOC			
FOT			
SGH			
R/I			
MEL			
TS			

Table 2 – Practical Task Training Requirements (By Task Type)

Superseded

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble-Shooting.

Percentage by Chapter

Chapter	Number of Practical Requirements for Each Chapter	Total number of Practical Elements Included Within Courseware	Percentage (%) included against applicable Chapter (should be at least 50% of the applicable practical requiorements within each Chapter)
05 Time limits / maintenance checks			
06 Dimensions/Areas (MTOM, etc.)			
.....			
99 Electronic Warfare			

Table 3 - Practical Task Training Requirements (By Chapter)

Practical Training Logbook

8.5.8.35 A Military Aircraft Type specific Practical Training Logbook (PTL) must be developed by a DASA 147 MTO, completed by the student and a certified true copy retained by the MTO delivering the training. It will record the training activities carried out during the practical training course and the subsequent assessment of trainee competence.

8.5.8.36 The PTL shall list all of the applicable S1000D systems, as specified within Appendix III to DASR 66, Section 3.2.

8.5.8.37 After the practical element of the MATR Training has been completed, an assessment must be performed, which must comply with the following:

1. The assessment shall be performed by designated assessors appropriately qualified (AMC to Appendix III).
2. The assessment shall evaluate the knowledge and demonstrated understanding of the trainee.

8.5.8.38 The PTL should include:

1. Trainee attendance sheet.
2. Course and Instructor’s details.
3. S1000D system number and title.
4. Aircraft Maintenance Manual or work-pack reference for each training task.
5. A list and detailed description of the training tasks.

Superseded

6. Each task must have a method of denoting the training technique (Synthetic, Aircraft registration, Classroom, etc.).

7. Task type (R/I, LOC, SGH etc.).

8. Date of each individual task completion.

9. Instructor signatures or stamps.

10. Spare entries for documenting additional/replacement “ad hoc” training tasks.

Note: Additional/replacement tasks must be of relevance to those they replace, be of benefit to the training objective and only replace planned tasks in exceptional circumstances.

8.5.8.39 EASA provide Practical type training logbook examples for both B1 and B2 PTL that can be used for guidance.

Practical Instructors and Assessors

8.5.8.40 In the majority of cases, the Practical instructor will be the same as that used for the Theory phase of the type training. They are a logical choice, as they possess an in-depth knowledge of the aircraft’s systems and will have developed an understanding of each student’s specific academic requirements.

8.5.8.41 Using the same instructor for both the Theory and Practical phases will often suit the business model of many organisations. In some cases, however, especially where a DASA 147 / DASA 145 affiliation exists, the organisation may choose to utilise experienced MAML holders / technicians, as appropirate, from their own maintenance workforce to deliver the Practical training.

8.5.8.42 These individuals must be given suitable training on the organisational processes involved, particularly the use of the Practical training record. It is recommended that they attended a train the trainer course, whether delivered by an external or internal source, which should specifically target the training techniques required for Practical training and set the organisation’s bench mark for the conduct of this training. They should be familiar with the tools or the techniques used by the training organisation to assess the competence of the practical abilities of trainees (maintenance simulators, mock up and etc.).

8.5.8.43 They should be experienced and show solid judgement regarding the abilities of the assessed trainees, they must have the required knowledge and experience of the task/s to be assessed. They should also be able to determine if the trainee accomplishes the tasks IAW current regulation, utilising approved procedures, maintenance practices etc. They should be fully aware of the aim of the assessment and conduct a practical assessment in such a way that the true abilities of the candidate are demonstrated to maintain the system.

8.5.8.44 Workforce sourced Instructors will be qualified and managed by the DASA 147 organisation. Refer to DASR 147.A.105 for details.

8.5.8.45 They must be included in the list Instructional staff (point 1.5 of the MTOE) and be subject to the same Instructor records and update training requirements as the directly employed Instructors.

8.5.8.46 Practical assessments may be conducted by either the Practical Instructor or a dedicated assessor, who has undergone a similar training and qualification process to that detailed above.

8.5.8.47 Upon completion of the PTL, it must be reviewed, assessed and approved by the relevant DASA 147 in its entirety.

Superseded

OJT Element of the Military Aircraft Type Rating

8.5.8.48 OJT is required for the initial type rating being sought in each licence category or sub-category:

8.5.8.49 For example; If a B1.1/B2 MAML is endorsed with the P-8A type in the B1.1 category and the MAML holder wishes to add the P-8A in the B2 category, he/she will have to complete B2 related OJT representative of that aircraft and its systems.

8.5.8.50 If the same B1.1 MAML holder adds the B1.3 category to their MAML, and wishes to add their first helicopter type, he/she must complete OJT representative of that first helicopter type. Any subsequent MATR within the same category/sub-category will only require further OJT if stipulated by DASA during the approval of the course.

8.5.8.51 A DASA 145 maintenance organisation appropriately approved for the maintenance of the particular aircraft type can conduct OJT for that type rating:

1. The OJT content shall be approved by DASA (Appendix III to DASR 66, sec. 6) and supported by a detailed curriculum showing its content and recorded within detailed worksheets/logbook;
2. OJT tasks shall be signed off by the student and countersigned by a 'designated supervisor';
3. Final assessment of OJT is mandatory and shall be performed by a 'designated assessor';
4. It can be carried out in an approved DASA 145 maintenance organisation with a Category A rating (maintenance on aircraft) and the procedures for OJT should be included in the exposition (MOE chapter 3.15 "OJT procedure") approved by DASA.
5. Where objective evidence can be provided; DASA may accept elements of practical and/or OJT experience gained on civil variants of state aircraft e.g. Boeing 737 for a P-8A Poseidon or E-7A Wedgetail MAML endorsement, provided the completed application also includes evidence of any additional 'differences training' for the Military type variant.

8.5.8.52 The OJT should include a sufficient number of tasks that are carried out under 'one to one' supervision (i.e. one supervisor dedicated to one trainee) and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.

8.5.8.53 AMC to Appendix II to DASR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list.

8.5.8.54 Up to 50% of the required OJT may be undertaken before the aircraft theoretical MATR Training starts, noting that:

1. the ADF Initial Employment Training (IET) workplace journals are the primary means of meeting the practical requirements for the Defence Registered Training Organisation issuance of selected MEA Unit of Competency;
2. portions of these workplace journals may also be utilised as a means of meeting the requirements of OJT, as long as they are completed in a DASA 145, and on the

Superseded

platform/components which the individual is completing their Type Rating training (Appendix III to DASR 66, para 6).

8.5.8.55 If these journal tasks are not carried out on the aircraft type (or its components) required for their subcategory, then these tasks cannot be constituted as OJT.

8.5.8.56 As a minimum, the OJT procedure should describe the following elements:

1. Content of the OJT: the list of tasks that should be performed during the OJT or a list of generic tasks and the process how to develop a list of particular tasks out of this list of generic tasks,
2. Qualifications of the assessor and supervisors performing the OJT,
3. OJT logbook/worksheets format and content,
4. OJT compliance report format and content,
5. Production planning for the implementation of OJT (how to plan the tasks),
6. Supervision process and the assessment process, what to do if the assessment is not positive,
7. Safe release to service of the aircraft after OJT,
8. OJT Log Book final assessment process and associated forms:
    i. An OJT Logbook assessment is carried out on an OJT Logbook to ensure that all required tasks have been carried out and certified for in accordance with the OJT Logbook assessment procedure.
    ii. MTOE procedure and associated documents should contain a procedure for the final assessment of an OJT Logbook and who it is completed as well as any associated forms needed and who is qualified to carry out such assessment.

Note: AMC to Section 6. of Appendix III to DASR-66 should be used when defining the content of the procedure.

Practical Assessment Vs On the Job Training (OJT) for Military Aircraft Type Ratings

8.5.8.57 The objective of OJT is to gain the required competence and experience in performing safe, effective and efficient maintenance. The practical assessment addresses the practical portion of any type training, whereas the OJT assessment addresses the additional hands-on experience necessary in a true maintenance environment as part of the first type rating in a (sub)category, as illustrated by the table below:

Superseded

Practical Assessment Vs On the Job Training		
	Practical Assessment	**OJT Assessment** ***For the purpose of DASR 66.A.45(c)***
What/Who is assessed	Candidates following practical element of Military Aircraft Type Ratings training.	Completeness of OJT
	Reference: 66.A.45 (a)(b); Appendix III, 4.2.; AMC Appendix III	Reference: 66.A.45 (c); Appendix III, section 6; AMC to Section 6 of Appendix III
Function of assessor:	To perform the final evaluation of the knowledge, skills and attitude of the trainee following the practical element of the type training	To conduct the final assessment of the completed OJT, whereas the candidate's competence is indirectly justified.
	Reference: Appendix III 4.2.; AMC Appendix III	Reference: Appendix III, 6.; AMC to Section 6 of Appendix III 8.
Organisation :	• DASA-147 • Approved maintenance environment (DASR-145, M.A. Subpart F with A rating, manufacturer) under the DASA-147 approval • Defined maintenance environment as described in the direct approved procedure by the competent authority	Always in a maintenance organisation approved under DASA-145 with an aircraft rating.
	Reference: Appendix III 1(b)	Reference: Appendix III 6.; AMC to Section 6 of Appendix III 1.
Objectives:	To evaluate if the candidate has gained the required competence in performing safe maintenance, inspections and routine work according to the aircraft documentation and other relevant instructions and tasks as appropriate for the type of aircraft.	To confirm the completion of the required diversity and quantity of OJT, based on the supervisor(s) reports and feedback. It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without necessary being the direct evaluation of the assessor.
	Reference: Appendix III, 3.2.	Reference: AMC to Section 6 of Appendix III 7. & 8.
Type of assessment:	The assessment may be: • diagnostic (prior to a course), • formative • summative (partial or final evaluation) • performed task-by-task • performed as a group of tasks • partly executed on simulation devices • performed as a final assessment	• Continuous during OJT (confirmed by the direct supervisor) • Summative, as a final evaluation by a designated assessor of the completeness of the OJT (based on the supervisor(s) reports and feedback)
	Reference: AMC to DASR-66 Appendix III 2)	Reference: AMC to Section 6 of Appendix III to DASR-66
Qualification of the assessor:	The assessment shall be performed by designated assessors appropriately qualified. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)	The OJT shall be assessed by appropriately qualified and designated assessors. It means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation. Guidance about the qualification is given in AMC to DASR-66 Appendix III 3.)
	Reference: Appendix III 4.2.; AMC to DASR-66 Appendix III 3.	Reference: Appendix III 6.; AMC to DASR-66 Appendix III 3.
Procedure included in:	DASR 147 MTOE	DASR 145 MOE
	Reference: Appendix III 1(b); DASR-147	Reference: AMC 145.A.70 (a)

Superseded

Table 4 – Practical Assessment Vs On the Job Training

Practical DASR 147 MILITARY AIRCRAFT TYPE TRAINING LEVELS VS SERVICE LEARNING LEVELS

The following table provides guidance on the correlation between the DASR Military Aircraft Type Training levels (TL), Air Force (MAFET) Learning Levels (LL), Army (ATI 1-3/20), SADL TLs and Navy LLs;

DASR		RAAF			ARA			SADL		RAN
TL	Description	LL	Definition	Description of graduate	LL	Definition	Assessment	TL	Description	
1	Graduate is: • Able to define descriptions and maintenance practices • Identify appropriate manuals and maintenance practices • Define layout of major systems • Define layout and characteristics of power plant • Identify special tooling and testing equipment	1	Training provides background knowledge only. It is familiarising in nature or is an introduction to further training.	The graduate has completed learning that either has no clear links to identified workplace requirements or supports underpinning knowledge, skills or range of variables.	1	**Low** - Unable to perform, little to no experience.	Skill and Knowledge are not assessed, but confirmation of learning may occur during training	1	Trained, but not against a prescribed standard.	Navy do not use Training Levels.
N/A		2	Trained to a level below that required for successful assessment against identified workplace requirements, without further training and/or practice.	The graduate has limited knowledge and has performed components of, but not the complete task, during training.	2	**Basic** - Limited in ability or knowledge, needs significant help from others.	Skill and Knowledge are assessed against a restricted set of performance criteria	2	Partially trained against a prescribed standard.	
2	Graduate is able to: • Understand theoretical fundamentals • Apply knowledge in a practical manner • Recall safety precautions • Describe systems and aircraft handling • Identify locations of principal components • Explain normal functioning of major systems • Perform procedures for servicing • Demonstrate proficiency in interpreting crew reports and reporting systems and determine airworthiness • Demonstrate the use, interpretation and application of appropriate documentation	3	Trained to the level to achieve the identified workplace requirement, but unable to be assessed in the context of the training environment. Subsequent experience and assessment using the prescribed workplace requirements or UoC is needed in the workplace environment.	The graduate is trained and ready for assessment against the identified workplace requirements or UoC. The graduate will be aware of common problems in standard workplace contexts but will likely encounter new situations with limited confidence.	3	**Demonstrable** - Able to perform at basic level, has some experience, needs help from time to time.	Skill and Knowledge are to be formally assessed against a set of defined performance criteria.	3	Fully trained and ready for assessment against prescribed standard.	
3	Graduate is able to: • Demonstrate theoretical knowledge of systems, structures and their relationship with other systems. Provide detailed descriptions and interpret results applying corrective action where appropriate • Perform checks as specified in maintenance manuals • Demonstrate use, interpretation and application of appropriate documentation • Correlate information for the purpose of decision making • Describe procedures for replacement of components	4	Trained to the level required to achieve the workplace requirements, without the need for further workplace training or practice. Assessment, using the prescribed workplace requirements or UoC, is completed in training environment.	The graduate is trained and assessed, and can be employed effectively on the job. The graduate will be able to cope with common problems in standard workplace contexts and will encounter new situations with moderate confidence.	4	**Advanced** - Capable and experienced, demonstrated proficiency, able to work independently with little help.	Skill and Knowledge are assured under defined employment conditions	4	Trained and assessed competent against the prescribed standard.	
N/A		5	Training reflects outcomes related to values and/or feelings prescribed for the workplace.	The graduate has chosen a certain course of personal action, as prescribed for the workplace.	5	**Expert** - Fully capable and experienced, sought for help by others, needs no assistance to complete tasks, ability to train and lead others, seen as SME.	Skill and Knowledge are internalised by practice and reflection and expressed as autonomous professionalism	N/A		

Table 5 - SADL Training Level Descriptions

Superseded

9. Flight Operations

9.1 Introduction

9.1.1 Flight Operations Regulations

9.1.1.1 The Flight Operations DASR provide amplification of Defence's obligations[1] under the WHS Act 2011 in the context of Defence flight operations. The regulations prescribe the accountabilities of the chain of command as they relate to Defence flight operations. For Military Air Operators (MAO), the regulations define management requirements. MAOs are obliged to implement a system of management to comply with applicable DASR and to ensure that their personnel conform to that system of management.

9.1.1.2 The Flight Operations DASR contain regulations for the safe conduct of flight operations by Defence aircraft, including UAS and aircraft operated on behalf of Defence. It includes requirements for training and qualification of all personnel involved in military flight operations.

9.1.1.3 **DASR Aircrew**. The purpose of DASR Aircrew is to assure that Defence aircrew are adequately trained and proficient for employment in a specific role. This includes regulation for the personnel and training aspects of Flying Instruction, Airborne Emergency Training, Crew Resource Management, Aviation Safety training and Flying Logbooks.

9.1.1.4 **DASR AO.Gen — Air Operations General**. DASR Air Operations (AO) General is applicable to all areas of air operations and includes requirements for Orders, Instructions and Publications (OIP) specific to air operations.

9.1.1.5 **DASR ARO – Authority Requirements for Air Operations**. The purpose of DASR ARO — Authority Requirements for Air Operations is to address a range of AO matters, including the following:

1. Statement of Operating Intent and Usage (SOIU), to inform decisions on whether an aircraft design remains safe for operations
2. The Defence Register
3. establishment of the Military Air Operator (MAO).

9.1.1.6 A MAO is the regulated organisation approved by DASA to conduct air operations. The senior member of a MAO is the Accountable Manager (AM), which is usually an O7 commander.

9.1.1.7 The majority of Defence flight operations are conducted under a Military Air Operator Certificate (MAOC) issued to a MAO. The MAO is usually a Force Element Group (FEG) or equivalent.

9.1.1.8 **DASR FSTD – Flight Simulation Training Devices.** The purpose of DASR FSTD — Flight Simulation Training Devices is to assure aviation operations augmented by a Flight Simulation Training Device (FSTD) are adequately controlled and managed. Approval of an FSTD is via an Installation Operating Permit (IOP).

9.1.1.9 **DASR FT – Flight Test.** The purpose of DASR FT — Flight Test is to assure that a MAO only undertakes those Flight Test activities it is capable of safely conducting, including that the tests are conducted under appropriate airworthiness controls using suitable personnel, processes and data. Flight Test is a subset of Defence Test and Evaluation (T&E). Flight Test activities involve, to varying

Superseded

extents, the operation of an aircraft outside of its existing type design certification. A MAO requires a specific privilege to be able to conduct Flight Test activities of this nature.

9.1.1.10 **DASR NDR – Non-Defence Registered Aircraft.** The purpose of DASR Non-Defence Registered Aircraft (NDRA) is to clarify Defence Aviation Safety Program (DASP) obligations of Defence when operating non Defence registered aircraft.

9.1.1.11 **DASR ORO – Organisation Requirements for Air Operations.** The purpose of DASR ORO Organisation Requirements for Air Operations is to assure Defence aircraft are operated with adequate controls to ensure safety of flight. They include the following:

1. Flight Operations—ensuring aircraft are operated in approved roles, with correct mission equipment, to approved procedures and instructions
2. Flying Management Systems
3. Appointment of Key Staff
4. Aircrew Competency System
5. Flight Authorisation System
6. Aeronautical Life Support Equipment
7. Aircraft Crewing (including Captaincy)
8. Oxygen Management (including Flight Crew and Supplemental Oxygen)
9. Authorised Electronic Equipment
10. Carriage of Personnel on Defence Aircraft
11. Use of Role Equipment
12. Flight Recorder(s) and Locating Equipment.

9.1.1.12 **DAS RoA – Rules of the Air.** The purpose of DASR RoA — Rules of the Air is to assure that the rules stipulated within Defence Aeronautical Information Publication (AIP), as they apply to Defence Aviation, are harmonised with ICAO and national civil practice wherever practical. The intent is that Defence Aviation will have due regard for the safety of navigation of civil aircraft.

9.1.1.13 **DASR SPA – Specific Purpose Approval.** The purpose of DASR SPA — Specific Purpose Approval is to assure that certain Defence Aviation activities are conducted safely. The scope of DASR SPA includes Command Clearances, Low Flying, Flypasts and Flying Displays, Defence Long Range Operations and Night Vision Imaging System operations.

9.1.1.14 **DASR UAS – Uncrewed Aircraft Systems.** The purpose of DASR UAS — Uncrewed Aircraft Systems is to assure the safe operation of UAS. The regulations account for the range of UAS complexity, design pedigree and mass through three different categories: [type] certified category UAS, specific category UAS and open category UAS.

9.1.2 Flight Operations Compliance

9.1.2.1 DASA approved aviation organisations implement DASR FLTOPS through a Command approved Flying Management System (FMS) that include:

Superseded

1. a framework of controls
2. approved orders, instructions and publications
3. the operation of crewed and uncrewed aircraft in approved roles, with correct mission equipment, by qualified and authorised individuals
4. a safety framework that supports compliance with statutory safety obligations and enables risk-based command decisions to deliver capability
5. a system to enable commanders to eliminate and minimise risks SFARP.

9.1.2.2 While the Defence Aviation Safety Framework (DASF) establishes a structure for the management of aviation safety within Defence, responsibility for ensuring the safe operation of aviation systems rests with the chain of command. In the assure/ensure balance, the responsibility to ensure compliance and conformance with the Flight Operations regulations lies largely with the Accountable Manager (AM) of the MAO, ACD Service Provider (ACDSP), or ABM Operator (ABMO). AMs are accountable for:

1. the creation and internal validation of local systems of management that are capable of effectively complying with the requirements of applicable DASR, to the defined scope and level contained in the Military Air Operator Certificate(MAOC), Operational Compliance Statement (OCS), Operations Specification (OpSpec), Air Cargo Service Provider Certificate (ACSPC) and Air Battle Management Operator Certificate (ABMOC)
2. liaison with DASA during development, implementation and application of the system of management, to ensure initial and ongoing compliance.

9.1.2.3 DASA, the MAO, ACDSP and ABMO have overlapping and complementary responsibilities in the Oversight and Enforcement, and Safety Investigation areas of the DASF. However, aviation safety is always a command responsibility. Commanders and managers are therefore accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

9.1.3 Command Clearances

9.1.3.1 The DASP contains flexibility provisions to assist commanders faced with compelling operational imperatives to make informed decisions regarding regulatory compliance. These provisions become particularly relevant in situations where commanders are expected to operate Defence aircraft at markedly higher levels of risk than normal[2], to achieve non-discretionary activities in support of Australia's national interests. Such decisions must be made at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised SFARFP.

9.1.3.2 In the FLTOPS regulations, Commanders may utilise DASR SPA.10 - Command Clearance (CC), to operate an aviation system outside the system's configuration, role, environment, limitation or condition within a risk based framework. Other flexibility provisions provided in Airworthiness DASR, such as the Military Permit to Fly (MPTF), and those under DASR GR.80 are discussed further in DASPMAN Volume 3, Section 6. However, before a MAO utilises a flexibility provision under the auspices of DASR GR.80, the application must be forwarded to, and approved by, the Authority.

Superseded

9.1.3.3 The Command Clearance process, available to MAOs under DASR SPA.10, differs from other flexibility provisions, in so far as it is not issued by the Authority, rather a commander at an appropriate level who can make the decision to proceed without further minimising risks commensurate with the clearance being granted. The Command Clearance process should not be used in the first instance to allow an aircraft to fly outside of its approved CRE. It should only be utilised when absolutely necessary to enable an aircraft to fly when the normal methods of ensuring airworthiness cannot be met and it must never be used for administrative convenience.

9.1.3.4 To summarise the process, when aircrew find a fault with their aircraft, a defect should be raised against the aircraft and then cleared, or deferred, by the appropriate maintenance organisation before returning to flight. An exception to this occurs when the defect is allowed under the aircraft's Minimum Equipment List (MEL) of allowable defects. In this case the aircrew may continue with their planned flight, giving due regard to the risks associated with the MEL item. If this process is not suitable or allowed under the DASR, then the MPTF process should be undertaken. Noting that the operational imperative influences the timeline for an MPTF, the captain may seek a Command Clearance through their chain of command.

9.1.3.5 The MAO should only process and approve a Command Clearance when considered with respect to the mission concerned, whether it is urgent or compelling, and the associated elevated level of risk that a Command Clearance would provide. As per all military aviation activities, the Command Clearance system requires appropriate risk consideration and the 7-Step Risk Management process must be followed. The Command Clearance system is there to enable a commander to fly aircraft outside of the approved CRE and as such, the granting of the clearance should not be made in haste or considered lightly.

9.1.3.6 For further information on Military Permits to Fly and Command Clearances see Chapter 5.3 and DASR SPA.10.

9.1.4 Historical context of Flight Operations Related Regulation

9.1.4.1 The Convention on International Civil Aviation (Chicago Convention 1944) set the basis for current civil aviation regulations and founded the International Civil Aviation Organisation (ICAO). Article 3 of the convention states:

> **This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft.**

9.1.4.2 In the Australian context, State Aircraft are defined as 'aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country'[3]. As Defence aircraft are included within this broad category, they are thereby exempt from all requirements contained within the civil aviation regulations.

9.1.4.3 To provide the directed level of aviation capability, Defence aviation platforms need to regularly use both domestic and international civil and military airspace. In doing so, military operators voluntarily adhere to ICAO flight procedures, including 'flying with due regard for the safety of navigation of civil aircraft', because militaries have a natural duty of care to all airspace users. Additionally, the Australian Government's National Aviation Policy White Paper notes that 'Defence, in collaboration with Airservices, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'. However, not all ICAO or civil aviation requirements are suited to military operations. Militaries therefore require bespoke regulatory

Superseded

systems to provide for operational capability and an equivalent level of safety. Hence, the tailored application of both civil and military requirements will ensure that Defence aircraft can continue to maximise their operational effectiveness.

9.1.5 MAO-AM Accountabilities and Responsibilities for Force Assigned Aircraft and Crew

9.1.5.1 **DASF and the spectrum of conflict.** The Defence Aviation Safety Framework (DASF) applies throughout the spectrum of conflict. While there are flexibility provisions, Joint Directive 21/2021 - *The Defence Aviation Safety Framework* contains no exceptions to the applicability of the DASF, in totality, during times of conflict.

9.1.5.2 **Accountability.** The DASF aligns accountability with control. Specifically [4]:

> *Commanders and managers are … accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.*

9.1.5.3 **TECHCON.** ADF Command and Control (C2) doctrine has a suitable means of control for MAO-AMs to exercise their accountability for force assigned aircraft and crew—Technical Advisory Control (TECHCON)[5] [6].

9.1.5.4 **Purpose.** The DASF provides amplification of Defence's safety obligations in the Defence Aviation Environment regarding the application of the:

1. *Work Health and Safety Act 2011*
2. *Work Health and Safety Regulations 2011*
3. various Codes of Practice made pursuant to the principal Act from time to time [7].

9.1.5.5 **Suitability.** The DASF is suitable for application across the spectrum of conflict. The DASF contains 'flexibility provisions to assist commanders faced with compelling operational imperatives.'[8] Notwithstanding, the DASF requires the application of flexibility provisions based on 'informed judgements … at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised so far as is reasonably practicable.'[9] This requirement drives the need for MAO-AMs to exercise TECHCON for force assigned aircraft—as the Joint Force Air Component Commander (JFACC) per se does not hold the knowledge, resources, structures or staff to support the risk management necessary to enact flexibility provisions[10].

9.1.5.6 **Division of duties between operational commanders and TECHCON authorities.** Note, for force assigned aircraft and crews, a court would likely find a MAO-AM (with TECHCON authority), and an operational commander (eg JFACC with operational command), have the same duty under s.16 WHS Act. However, the court would likely consider the capacity to influence and control, and thus discharge the duty by each commander will vary, depending on the factual circumstances of the situation.

9.1.5.7 **WHS Act applicability throughout the spectrum of conflict.** The WHS Act applies throughout the spectrum of conflict. Anecdotally, there is a common misconception that, the WHS Act does not apply during times of conflict. *The CDF declaration* makes clear that the obligations on

Superseded

'officers, workers and other persons' are largely unchanged between peace, warlike operations and non-warlike operations. Specifically:

1. *the CDF declaration* renders inapplicable to warlike operations or non-warlike operations only the sections of the WHS Act that deal with[11]:
   i. 'Duty to notify of notifiable incidents'
   ii. 'Duty to preserve incident sites'.

9.1.5.8 **MAO-AM accountabilities/responsibilities.** MAO-AM accountabilities and responsibilities are unchanged for force assigned aircraft and crew. The DASP Manual, consistent with Joint Directive 21/2021, places accountabilities and responsibilities on MAO-AM. While there are flexibility provisions, the DASP Manual contains no exceptions to the applicability of the DASP (including the DASR) to MAO-AM regarding force assigned aircraft and crew.

9.1.5.9 **ADF doctrine—C2 provisions to account for the relationship between MAO-AM and force assigned commanders.** ADF doctrine has established C2 provisions to account for the relationship between MAO-AM and force assigned commanders—specifically, TECHCON. TECHCON is 'the provision of specialist and technical advice by designated authorities for the management and operation of forces.[12],

9.1.5.10 By convention (and consistent with ADF-P-0 *Command*[13]) MAO-AMs retain TECHCON for force assigned aircraft and crew. ADF-P-0 Command specifies:

> *Capability managers exercise techcon through advice to the theatre commander for assigned forces ….*
>
> *… For an operational commander, techcon advice will relate to the employment of capabilities so that they are used within their operating parameters ….*

9.1.5.11 C2, as described in ADF-P-0 Command, provides an operational commander the necessary freedom to reject TECHCON advice, as follows:

> *Techcon advice may not be altered but may be rejected in part, or in total, by a commander in consideration of operational factors and within their span of command …*

9.1.5.12 DASF obligations on MAOs, considered against the ability of an operational commander to reject TECHCON advice, infer a number of tasks:

1. **on the MAO-AM[14]:**
   i. to be informed of the operational context in providing any TECHCON advice
   ii. to be available and responsive to operational commanders' requests for TECHCON advice
   iii. to *administer* Command Clearances[15] consistent with the operational commander's decisions regarding TECHCON advice -including any necessary risk management following an operational commander's decision to operate an aircraft outside its 'approved standards and limitations

   Note the obligation to 'administer' the Command Clearance should not be read as an obligation on the MAO-AM to replicate or endorse the 'decision to proceed' that the operational commander has already made. Rather, the

Superseded

obligation on the MAO-AM to administer the Command Clearance is a recognition that:

- A Command Clearance is the system for managing operation of an aviation system outside its 'approved standards and limitations'—across the spectrum of conflict.
- The MAO is resourced (ie has the staff, expertise and processes to conduct informed, capability specific, risk management) to risk manage the ongoing safe operation of the aircraft—and the JFACC is not.
- Operation of the aircraft following an exceedance of its 'approved standards and limitations' requires risk management—both immediate and ongoing[16].

2. **on the operational commander:**

   i. to provide the MAO-AM sufficient information to understand the operational context

   ii. to weigh the operational imperative against the impact on the capability in considering any TECHCON advice

   iii. to formally document the risk(s) they are accepting by setting aside the MAO-AM-provided TECHCON advice, to meet their operational imperative

   iv. to inform the MAO-AM of any circumstances in which the operational commander has rejected TECHCON advice - to enable the MAO-AM to administer a Command Clearance, and conduct any necessary risk management.

9.1.5.13 **Historical operational experience.** Historical RAAF C2 constructs were not suitable. The Jones-Bostock affair[17] in World War II is an example of a failure of C2 in dealing with the relationship between an operational commander and a TECHCON authority[18]. It illustrates the importance of both a suitable C2 structure, and constructive interpersonal relationships between the TECHCON authority and the operational commander.

9.1.5.14 **Recent operational history.** Recent operational history indicates that doctrinal C2 provisions are suitable. Recent operational experience evidences that:

1. TECHCON provides a suitable C2 arrangement between MAO-AMs and operational commanders
2. there are suitable personnel posted to MAO-AM and senior Air Operations Centre positions to support effective interpersonal relationships.

9.5 Defence Navigation Approvals

9.5.1 Introduction

9.5.1.1 The purpose of this chapter is to provide MAOs with guidance when seeking new (or updated) Defence navigation approvals, for Aircraft operations in airspace involving either:

Superseded

1. Performance Based Navigation (PBN)
2. Reduced Vertical Separation Minima (RVSM)
3. North Atlantic High-Level Airspace (NAT HLA).

9.5.1.2 A MAO must obtain DASA approval to conduct specified Defence navigation operations — DASR SPA.50 refers. MAOs require both:

1. a Military Type Certificate (MTC) (or design approval of changes to the MTC, under DASR Part 21) detailing the necessary equipment to support the Defence navigation approval
2. an updated Military Air Operator Certificate (MAOC) Operations Specification (OpSpec) to include a 'Specific Approval', under DASR SPA.50.

9.5.1.3 Approval to operate in PBN, RVSM or NAT HLA airspace requires demonstration that:

1. the aircraft is technically capable of conducting the requested operations (also known as 'aircraft eligibility')
2. the relevant DASR Part 21J organisation has implemented the continued airworthiness requirements for the required operations
3. the MAO has updated its Flying Management System (FMS) for the requested operations (including, for example, that appropriate training is in place, aircrew competence has been assessed, and associated OIP has been published).

9.5.1.4 The Defence navigation approvals that MAOs can request are the Defence equivalent of the civil navigation requirements defined by[19]:

1. CASA Civil Aviation Order (CAO) 20.91 – (Instructions and Directions for Performance Based Navigation) Instrument 2014
2. the CASA AC 91 series – Performance Based Navigation
3. Civil Aviation Safety Regulation (CASR) Part 91.655 – Reduced Vertical Separation Minima (RVSM) Airspace
4. ICAO NAT Doc 007 - North Atlantic Operations and Airspace Manual.

9.5.1.5 Relevant acronyms, abbreviations and additional reference can be found at Annex A.

9.5.2 Navigation Approvals - Background

9.5.2.1 PBN, RVSM and NAT HLA requirements form part of an internationally recognised framework of area-based navigation capabilities for Aircraft[20], based on the exploitation of:

1. the Global Navigation Satellite System (GNSS)
2. on-board Aircraft systems.

9.5.2.2 International Civil Aviation Organisation (ICAO) member nations commenced introducing these navigation requirements in 2001. For Australia, CASA CAO 20.18 mandated the installation of GNSS into all civil Instrument Flight Rules (IFR) Aircraft WEF 4 Feb 16. On that date, the Australian

Superseded

Back-up Navigation Network (BNN) was activated, resulting in approximately 200 (traditional) terrestrial navigation aids being withdrawn from service in Australia (approximately 50%). Therefore, from that date, Australia effectively became GNSS-based PBN and RVSM airspace.

9.5.2.3 While State Aircraft are not bound to the Civil Aviation Act 1988 (Cth), Defence aerospace platforms need to regularly use both domestic and international civil and military airspace for their Defence roles. The tailored application of PBN, RVSM and NAT HLA requirements in Defence Aircraft will ensure that Defence aviation assets can continue to maximise their operational effectiveness. Additionally, the Australian Government's Aviation White Paper—Towards 2050 noted that 'Defence, in collaboration with Air Services, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'[21].

9.5.2.4 **PBN operations.** PBN encompasses two lateral navigation specification suites:

1. Required Navigation Performance (RNP)
2. aRea NAVigation (RNAV).

9.5.2.5 The difference is that On-Board Performance Monitoring and Alerting (OBPMA) is required for RNP[22], but not for RNAV.

9.5.2.6 **RVSM operations.** RVSM applies to operations in airspace between Flight Level (FL) 290 and FL 410 inclusive, where a 1000 ft reduced vertical separation minimum is applied.

9.5.2.7 **NAT HLA operations.** NAT HLA operations apply in the North Atlantic, between FL 285 and FL 420 (inclusive), in the airspace linking Europe and North America. This is the busiest oceanic airspace in the world, with limited control and communications coverage. Successful Aircraft separation depends on applying the highest standards of horizontal and vertical navigation performance, and on aircrew operating discipline.

9.5.3 Navigation Approval—Education and Training Development Guidance

9.5.3.1 MAO education and self-training development guidance is available below. The guidance supports MAO development or acceptance of extant training materials that allow the qualification of aircrew for the navigation approvals requested.

1. PBN and RVSM Education and Training Guidance for Military Air Operators
2. Example PBN - RVSM Multiple Choice Aircrew Assessment Quizzes Operators
3. Example PBN - RVSM Quick Reference Handbook Operational Summary

9.5.4 Defence Navigation Approval[23] Process

9.5.4.1 DASR SPA.50 and its complementary DASR Form 1307 Application for Navigation Specification Approval, are based on CASA (ie ICAO) requirements. The form is used to:

1. assist MAOs manage their navigation approval requests, by listing required compliance evidence against PBN, RVSM and NAT HLA requirements
2. support complementary MAO risk management processes

Superseded

3. support MAO and DASA evidence review

4. support a complementary major change to the Type Certification Basis (TCB) where the Aircraft have not previously demonstrated meeting PBN, RVSM and NAT HLA requirements. [24] [25],

9.5.4.2 **Alternative demonstration of compliance.** As of 2023, CASA only specifically provides approvals for PBN RNP-AR operations. Other PBN specifications are automatically considered 'approved' if they are listed in relevant Aircraft OIP (including the AFM)—this is normal practice in civil aviation. However, most non-civil-derivative military platforms do not typically provide statements of compliance with PBN, RVSM and NAT HLA requirements in their OIP. In these military cases, DASA may accept compliance with civil standards through alternative means, by establishing equivalent performance. This involves either, or a combination of[26]:

1. demonstrating that equipment function and performance meets the intent of (but not strict compliance with) the relevant civil standard

2. demonstrating that the use of operational procedures can meet the same function, integrity and OBPMA performance requirements.

9.5.4.3 The most common reasons non-civil derivative military platforms have difficulty achieving compliance with PBN, RVSM and NAT HLA requirements are:

1. the absence of Technical Standard Order (TSO)-approved equipment

2. limited or no evidence of compliance with system functional, integrity or OBPMA performance requirements.

9.5.4.4 Early DASA engagement should be sought for demonstrations via equivalency— to seek assistance in defining the scope of compliance evidence required and likely timelines, and to confirm that a navigation approval is possible before the applicant commits significant resources. Where operational urgency applies, MAOs should consider temporarily applying for less precise[27] navigation approvals—which can be demonstrated more easily—while pursuing more precise navigation approvals in parallel over a less constrained timeframe.

9.5.5 DASR Form 1307 – Application for Navigation Specification Approvals

9.5.5.1 MAOs can request Defence navigational approvals using DASR Form 1307. Each approval is categorised as either 'core', 'non-core', 'supplemental', and 'other', as shown below.

9.5.5.2 **Core approvals.** Core approvals are simpler to process than non-core approvals, and include:

1. RNAV 1

2. RNAV 2

3. RNAV 5

4. RNP 1

5. RNP 2

6. RNP APCH, including:

Superseded

i. LNAV

ii. LNAV/VNAV

iii. LP

iv. LPV

9.5.5.3 **Non-Core approvals.** Non-core approvals require a more complex compliance process and evidence; and include those specifications that are detailed in other regulatory documents, but are administered in accordance with the nominal PBN approval process (ie RVSM)[28] Non-core approvals include:

1. RNAV 10 (RNP 10)
2. RNP 0.3 (Helicopter)
3. RNP 4
4. RNP AR (RNP AR APCH and RNP AR DP Operations may include One Engine Inoperative (OEI) procedures), including:
   i. RNP AR APCH
   ii. RNP AR DP
5. A-RNP
6. RVSM.

9.5.5.4 **Supplemental approvals.** Supplemental approvals either support another approval, provide an alternate means to support an approval, or provide supplemental navigational capabilities. However, they do not exist in isolation (ie they are complementary to selected core and non-core approvals). Supplemental approvals include:

1. APV / Baro-VNAV
2. Radius to Fix (RF)
3. Fixed Radius Transition (FRT)
4. Time of Arrival Control (TOAC)
5. use of suitable area navigation systems on conventional routes and procedures (both en route and terminal).

9.5.5.5 **Other approvals.** Other approvals are specific or location-based, and include:

1. NAT HLA.

9.5.5.6 A MAO may use the same DASR Form 1307 for multiple approvals. Note, some of the more precise Defence navigation approvals automatically include approval for less precise Defence navigation approvals—this is known as 'nesting'. For example, if DASA awards an approval for RNP 4, DASA will automatically consider approvals for RNP 5 and RNP 10.

Superseded

9.5.6 Applying for Navigation Approvals

9.5.6.1 To gain DASA navigation approval, the applicant must:

1. complete DASR Form 1307
2. submit the required evidence against the approval(s) selected.

9.5.6.2 MAOs should submit applications to DASA at least 90 days prior to the required navigation operations. This allows for the resolution of potential shortfalls against the requested approval(s) before the major change to the TCB and applicant OpSpec.

9.5.6.3 To provide a navigation approval, DASA assesses each approval's compliance evidence against three navigation approval component requirements. The three components are the same for each approval, but the level of detail differs dependent on the approval chosen. The three navigation component requirements are:

1. **Component 1**: Initial Airworthiness and Aircraft eligibility requirements.
2. **Component 2**: Continued Airworthiness requirements.
3. **Component 3**: Flight operations procedures and training requirements.

9.5.6.4 **DASR Form 1307 preparation.** Applicants must use DASR Form 1307 to support review of the evidence requirements of each navigation approval sought. In order of increasing complexity (ie time to process), application evidence options are:

1. The application is based upon an **existing** navigation approval (eg the Aircraft eligibility and continuing airworthiness requirements for the RNP 2 approval can be based on navigation approvals already held for either RNP 1, RNP APCH or RNP AR).
2. The application is based upon a **prior certification** against relevant navigation approval requirements[29].
3. The application is based upon **demonstration** that on-board equipment (and its installation) **meets** the navigation approval's functional, display, alerting and performance requirements[30].
4. The application is based upon **demonstration** that on-board equipment (and its installation), when supported by defined operational controls, **provides functional equivalence** to the approval's functional, display, alerting and performance requirements.
5. The application is based upon a **DASA-agreed alternate approach** to achieving **functional equivalence** to the approval's functional, display, alerting and performance requirements.

9.5.6.5 **Navigation approval evidence.** The following can assist MAOs in collating or generating the evidence required:

1. **For component 1 - Initial Airworthiness and Aircraft eligibility.** DASR Form 1307 uses question sets to guide applicants through the necessary evidence. MAOs may demonstrate Aircraft eligibility through any one of the following:

Superseded

i. the CAA/MAA-approved AFM confirms that the Aircraft **is capable** of undertaking the required operations, with a CRE assessment that either:

– confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

– identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

ii. the CAA/MAA confirms that the Aircraft **has been certified** for the required PBN, RVSM and NAT HLA operations, with a CRE assessment that either:

– confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

– identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

iii. a technical assessment of the design demonstrates compliance with the prescribed airworthiness requirements for the specified operations.

2. **For Component 2 - Continued Airworthiness.** DASR Form 1307 guides applicants through the evidence necessary to demonstrate that navigation system components will remain compliant with the approved Type Design[31] while in-Service, and that the navigation databases used will remain valid during operations.

3. **For Component 3 - Flight operations procedures and training.**

i. Flight operations procedures. DASR Form 1307 lists operations documentation requirements for each navigation approval, including[32]:

– operating policies to support selected operations under all normal and emergency conditions

– flight crew procedures and checklists for all navigation approvals for the Aircraft Type

– Minimum Equipment Lists (MELs, or their equivalent) for each navigation approval

– planning and management OIP (including for navigation database updates and validation, and mission planning procedures)

– OIP for the reporting and management of navigation database discrepancies and errant Aircraft behaviour observed during approved operations.

ii. **Flight operations training.** DASR Form 1307 lists both generic and specific Flight operations training requirements for each navigation approval, including:

– Flight crew training programs, competency assessments, currency, and training records

– maintenance staff training requirements.

Superseded

9.5.6.6 **Navigation approval evidence shortfall resolution.** Where DASR Form 1307 requirements cannot be met, the form supports DASA consultation and shortfall resolution. The applicant must demonstrate functional equivalence to published requirements. Shortfall resolution involves the:

1. DASA Desk Officer and applicant reviewing shortfalls and discussing possible pathways to demonstrating compliance
2. applicant proposing an appropriate alternative to compliance, that demonstrates functional equivalence, for example:
    i. prior alternative CAA/MAA certifications
    ii. operational or crew-based procedural additions that can demonstrate functional equivalence[33].
3. applicant providing evidence that demonstrates functional equivalence, such as[34]:
    i. flight test programs
    ii. operational human factors and workload assessments
    iii. LMPs
    iv. Aircraft Type Design System Safety Assessments
    v. Risk Management Plans and Mission Risk Profiles to define the additional controls required to be incorporated into OIP.

9.5.6.7 **DASR Form 1307 submission.** To finalise the MAO request, the applicant must submit the form and the corresponding evidence data pack, via a MAO request, to dasa-davnops.operationalreviews@defence.gov.au. The data pack should include a summary of the documents attached and a description of each document's purpose towards navigation approval requirement compliance.

9.5.6.8 When compliance is demonstrated, and the MTCH has updated the aircraft's TCB (through a DASA approved Major change to Type Design), DASA will add the navigation approval(s) to the OpSpec.

9.5.5.9 Table 1 provides MAOs with a checklist of the evidence required in data packs. Note, not all items are required for all navigation approvals. Additionally—in the case of non-core approvals; or where there is a requirement to demonstrate functional equivalence—this checklist is not exhaustive.

Submission Checklist Item
DASR Form 1307 • In original MS Excel Format
Initial Airworthiness and Aircraft Eligibility

Superseded

- Aircraft Airworthiness documents which provide evidence that the Aircraft is Type Certified for the requested operations (eg AFM and supplements, OEM service letters, Type Certificate Compliance Document).
- A description of the relevant Aircraft equipment required for the proposed navigation approvals, including a configuration list of components, and how the system meets applicable requirements.

Continued Airworthiness

- A description of the maintenance program used to ensure the continued Airworthiness of the Aircraft for the equipment required for the navigation approval. This need only address those circumstances where additional specific maintenance is required.
- Applicable Aircraft Maintenance Manuals for the relevant system/s.
- An equipment list for the navigation approvals requested (make, model & part—both hardware & software).
- Applicable extracts from the Minimum Equipment List (Airworthiness items) and applicable instructions that demonstrate identification and management of:
- any unserviceability that affects the conduct of any approved operation
- the systems that GNSS interfaces with, so that in the event of the GNSS being inoperative, the full impact of the failure can be determined
- The rationale for selection of specific MEL items as having an impact on safe operations, and any associated risk assessments.

Airworthiness - Digital Data

- A description of the method used to receive updates to (including the frequency of updates) and to ensure the validity of the airborne navigation database. This should address the validation of data provided externally and internally; and verification procedures for any internal change to the supplied data
    - **Note:** this should include coverage of all digital navigation data (including map and chart data used in Flight during the conduct of procedures, or for ground verification); and

Superseded

	data acquisition, manipulation, and management (to encompass all potential Defence Aircraft operations). • Evidence that the suppliers of the navigation database comply with the minimum integrity requirements of the most stringent approval requested.
Flight Operations Processes • Operational procedures (including normal and emergency) published in OIP. These procedures should include Flight planning, pre-flight, inflight and post-flight. • Procedures should include copies of, or extracts from, OIP covering: o operations manuals o the AFM o checklists o contingency procedures o QRH (or equivalent) o sections of the MEL applicable to the requested operations	
Training and Qualifications • A description of the proposed aircrew, maintenance and other applicable personnel and specialists' training for the requested operations; and associated competencies and currency requirements (including a copy of the LMP and associated artefacts[35]. • Copies of relevant training syllabi, training proficiency examination and assessment templates and currency assessment templates.	

Table 1 – MAO Navigation Approval Submission checklist

Superseded

9.1.1 Flight Operations Regulations

9.1.1.1 The Flight Operations DASR provide amplification of Defence's obligations[1] under the WHS Act 2011 in the context of Defence flight operations. The regulations prescribe the accountabilities of the chain of command as they relate to Defence flight operations. For Military Air Operators (MAO), the regulations define management requirements. MAOs are obliged to implement a system of management to comply with applicable DASR and to ensure that their personnel conform to that system of management.

9.1.1.2 The Flight Operations DASR contain regulations for the safe conduct of flight operations by Defence aircraft, including UAS and aircraft operated on behalf of Defence. It includes requirements for training and qualification of all personnel involved in military flight operations.

9.1.1.3 **DASR Aircrew**. The purpose of DASR Aircrew is to assure that Defence aircrew are adequately trained and proficient for employment in a specific role. This includes regulation for the personnel and training aspects of Flying Instruction, Airborne Emergency Training, Crew Resource Management, Aviation Safety training and Flying Logbooks.

9.1.1.4 **DASR AO.Gen — Air Operations General**. DASR Air Operations (AO) General is applicable to all areas of air operations and includes requirements for Orders, Instructions and Publications (OIP) specific to air operations.

9.1.1.5 **DASR ARO – Authority Requirements for Air Operations**. The purpose of DASR ARO — Authority Requirements for Air Operations is to address a range of AO matters, including the following:

1. Statement of Operating Intent and Usage (SOIU), to inform decisions on whether an aircraft design remains safe for operations
2. The Defence Register
3. establishment of the Military Air Operator (MAO).

9.1.1.6 A MAO is the regulated organisation approved by DASA to conduct air operations. The senior member of a MAO is the Accountable Manager (AM), which is usually an O7 commander.

9.1.1.7 The majority of Defence flight operations are conducted under a Military Air Operator Certificate (MAOC) issued to a MAO. The MAO is usually a Force Element Group (FEG) or equivalent.

9.1.1.8 **DASR FSTD – Flight Simulation Training Devices.** The purpose of DASR FSTD — Flight Simulation Training Devices is to assure aviation operations augmented by a Flight Simulation Training Device (FSTD) are adequately controlled and managed. Approval of an FSTD is via an Installation Operating Permit (IOP).

9.1.1.9 **DASR FT – Flight Test.** The purpose of DASR FT — Flight Test is to assure that a MAO only undertakes those Flight Test activities it is capable of safely conducting, including that the tests are

Superseded

conducted under appropriate airworthiness controls using suitable personnel, processes and data. Flight Test is a subset of Defence Test and Evaluation (T&E). Flight Test activities involve, to varying extents, the operation of an aircraft outside of its existing type design certification. A MAO requires a specific privilege to be able to conduct Flight Test activities of this nature.

9.1.1.10 **DASR NDR – Non-Defence Registered Aircraft.** The purpose of DASR Non-Defence Registered Aircraft (NDRA) is to clarify Defence Aviation Safety Program (DASP) obligations of Defence when operating non Defence registered aircraft.

9.1.1.11 **DASR ORO – Organisation Requirements for Air Operations.** The purpose of DASR ORO Organisation Requirements for Air Operations is to assure Defence aircraft are operated with adequate controls to ensure safety of flight. They include the following:

1. Flight Operations—ensuring aircraft are operated in approved roles, with correct mission equipment, to approved procedures and instructions
2. Flying Management Systems
3. Appointment of Key Staff
4. Aircrew Competency System
5. Flight Authorisation System
6. Aeronautical Life Support Equipment
7. Aircraft Crewing (including Captaincy)
8. Oxygen Management (including Flight Crew and Supplemental Oxygen)
9. Authorised Electronic Equipment
10. Carriage of Personnel on Defence Aircraft
11. Use of Role Equipment
12. Flight Recorder(s) and Locating Equipment.

9.1.1.12 **DAS RoA – Rules of the Air.** The purpose of DASR RoA — Rules of the Air is to assure that the rules stipulated within Defence Aeronautical Information Publication (AIP), as they apply to Defence Aviation, are harmonised with ICAO and national civil practice wherever practical. The intent is that Defence Aviation will have due regard for the safety of navigation of civil aircraft.

9.1.1.13 **DASR SPA – Specific Purpose Approval.** The purpose of DASR SPA — Specific Purpose Approval is to assure that certain Defence Aviation activities are conducted safely. The scope of DASR SPA includes Command Clearances, Low Flying, Flypasts and Flying Displays, Defence Long Range Operations and Night Vision Imaging System operations.

9.1.1.14 **DASR UAS – Uncrewed Aircraft Systems.** The purpose of DASR UAS — Uncrewed Aircraft Systems is to assure the safe operation of UAS. The regulations account for the range of UAS complexity, design pedigree and mass through three different categories: [type] certified category UAS, specific category UAS and open category UAS.

Superseded

9.1.2 Flight Operations Compliance

9.1.2.1 DASA approved aviation organisations implement DASR FLTOPS through a Command approved Flying Management System (FMS) that include:

1. a framework of controls
2. approved orders, instructions and publications
3. the operation of crewed and uncrewed aircraft in approved roles, with correct mission equipment, by qualified and authorised individuals
4. a safety framework that supports compliance with statutory safety obligations and enables risk-based command decisions to deliver capability
5. a system to enable commanders to eliminate and minimise risks SFARP.

9.1.2.2 While the Defence Aviation Safety Framework (DASF) establishes a structure for the management of aviation safety within Defence, responsibility for ensuring the safe operation of aviation systems rests with the chain of command. In the assure/ensure balance, the responsibility to ensure compliance and conformance with the Flight Operations regulations lies largely with the Accountable Manager (AM) of the MAO, ACD Service Provider (ACDSP), or ABM Operator (ABMO). AMs are accountable for:

1. the creation and internal validation of local systems of management that are capable of effectively complying with the requirements of applicable DASR, to the defined scope and level contained in the Military Air Operator Certificate(MAOC), Operational Compliance Statement (OCS), Operations Specification (OpSpec), Air Cargo Service Provider Certificate (ACSPC) and Air Battle Management Operator Certificate (ABMOC)
2. liaison with DASA during development, implementation and application of the system of management, to ensure initial and ongoing compliance.

9.1.2.3 DASA, the MAO, ACDSP and ABMO have overlapping and complementary responsibilities in the Oversight and Enforcement, and Safety Investigation areas of the DASF. However, aviation safety is always a command responsibility. Commanders and managers are therefore accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

9.1.3 Command Clearances

9.1.3.1 The DASP contains flexibility provisions to assist commanders faced with compelling operational imperatives to make informed decisions regarding regulatory compliance. These provisions become particularly relevant in situations where commanders are expected to operate Defence aircraft at markedly higher levels of risk than normal[2], to achieve non-discretionary activities in support of Australia's national interests. Such decisions must be made at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised SFARFP.

9.1.3.2 In the FLTOPS regulations, Commanders may utilise DASR SPA.10 - Command Clearance (CC), to operate an aviation system outside the system's configuration, role, environment, limitation

Superseded

or condition within a risk based framework. Other flexibility provisions provided in Airworthiness DASR, such as the Military Permit to Fly (MPTF), and those under DASR GR.80 are discussed further in DASPMAN Volume 3, Section 6. However, before a MAO utilises a flexibility provision under the auspices of DASR GR.80, the application must be forwarded to, and approved by, the Authority.

9.1.3.3 The Command Clearance process, available to MAOs under DASR SPA.10, differs from other flexibility provisions, in so far as it is not issued by the Authority, rather a commander at an appropriate level who can make the decision to proceed without further minimising risks commensurate with the clearance being granted. The Command Clearance process should not be used in the first instance to allow an aircraft to fly outside of its approved CRE. It should only be utilised when absolutely necessary to enable an aircraft to fly when the normal methods of ensuring airworthiness cannot be met and it must never be used for administrative convenience.

9.1.3.4 To summarise the process, when aircrew find a fault with their aircraft, a defect should be raised against the aircraft and then cleared, or deferred, by the appropriate maintenance organisation before returning to flight. An exception to this occurs when the defect is allowed under the aircraft's Minimum Equipment List (MEL) of allowable defects. In this case the aircrew may continue with their planned flight, giving due regard to the risks associated with the MEL item. If this process is not suitable or allowed under the DASR, then the MPTF process should be undertaken. Noting that the operational imperative influences the timeline for an MPTF, the captain may seek a Command Clearance through their chain of command.

9.1.3.5 The MAO should only process and approve a Command Clearance when considered with respect to the mission concerned, whether it is urgent or compelling, and the associated elevated level of risk that a Command Clearance would provide. As per all military aviation activities, the Command Clearance system requires appropriate risk consideration and the 7-Step Risk Management process must be followed. The Command Clearance system is there to enable a commander to fly aircraft outside of the approved CRE and as such, the granting of the clearance should not be made in haste or considered lightly.

9.1.3.6 For further information on Military Permits to Fly and Command Clearances see Chapter 5.3 and DASR SPA.10.

9.1.4 Historical context of Flight Operations Related Regulation

9.1.4.1 The Convention on International Civil Aviation (Chicago Convention 1944) set the basis for current civil aviation regulations and founded the International Civil Aviation Organisation (ICAO). Article 3 of the convention states:

> **This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft.**

9.1.4.2 In the Australian context, State Aircraft are defined as 'aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country'[3]. As Defence aircraft are included within this broad category, they are thereby exempt from all requirements contained within the civil aviation regulations.

9.1.4.3 To provide the directed level of aviation capability, Defence aviation platforms need to regularly use both domestic and international civil and military airspace. In doing so, military operators voluntarily adhere to ICAO flight procedures, including 'flying with due regard for the safety

Superseded

of navigation of civil aircraft', because militaries have a natural duty of care to all airspace users. Additionally, the Australian Government's National Aviation Policy White Paper notes that 'Defence, in collaboration with Airservices, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'. However, not all ICAO or civil aviation requirements are suited to military operations. Militaries therefore require bespoke regulatory systems to provide for operational capability and an equivalent level of safety. Hence, the tailored application of both civil and military requirements will ensure that Defence aircraft can continue to maximise their operational effectiveness.

9.1.5 MAO-AM Accountabilities and Responsibilities for Force Assigned Aircraft and Crew

9.1.5.1 **DASF and the spectrum of conflict.** The Defence Aviation Safety Framework (DASF) applies throughout the spectrum of conflict. While there are flexibility provisions, Joint Directive 21/2021 - *The Defence Aviation Safety Framework* contains no exceptions to the applicability of the DASF, in totality, during times of conflict.

9.1.5.2 **Accountability.** The DASF aligns accountability with control. Specifically [4]:

> *Commanders and managers are … accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.*

9.1.5.3 **TECHCON.** ADF Command and Control (C2) doctrine has a suitable means of control for MAO-AMs to exercise their accountability for force assigned aircraft and crew—Technical Advisory Control (TECHCON)[5] [6].

9.1.5.4 **Purpose.** The DASF provides amplification of Defence's safety obligations in the Defence Aviation Environment regarding the application of the:

1. *Work Health and Safety Act 2011*
2. *Work Health and Safety Regulations 2011*
3. various Codes of Practice made pursuant to the principal Act from time to time [7].

9.1.5.5 **Suitability.** The DASF is suitable for application across the spectrum of conflict. The DASF contains 'flexibility provisions to assist commanders faced with compelling operational imperatives.'[8] Notwithstanding, the DASF requires the application of flexibility provisions based on 'informed judgements … at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised so far as is reasonably practicable.'[9] This requirement drives the need for MAO-AMs to exercise TECHCON for force assigned aircraft—as the Joint Force Air Component Commander (JFACC) per se does not hold the knowledge, resources, structures or staff to support the risk management necessary to enact flexibility provisions[10].

9.1.5.6 **Division of duties between operational commanders and TECHCON authorities.** Note, for force assigned aircraft and crews, a court would likely find a MAO-AM (with TECHCON authority), and an operational commander (eg JFACC with operational command), have the same duty under s.16 WHS Act. However, the court would likely consider the capacity to influence and control, and thus

Superseded

discharge the duty by each commander will vary, depending on the factual circumstances of the situation.

9.1.5.7 **WHS Act applicability throughout the spectrum of conflict.** The WHS Act applies throughout the spectrum of conflict. Anecdotally, there is a common misconception that, the WHS Act does not apply during times of conflict. *The CDF declaration* makes clear that the obligations on 'officers, workers and other persons' are largely unchanged between peace, warlike operations and non-warlike operations. Specifically:

1. *the CDF declaration* renders inapplicable to warlike operations or non-warlike operations only the sections of the WHS Act that deal with[11]:
    i. 'Duty to notify of notifiable incidents'
    ii. 'Duty to preserve incident sites'.

9.1.5.8 **MAO-AM accountabilities/responsibilities.** MAO-AM accountabilities and responsibilities are unchanged for force assigned aircraft and crew. The DASP Manual, consistent with Joint Directive 21/2021, places accountabilities and responsibilities on MAO-AM. While there are flexibility provisions, the DASP Manual contains no exceptions to the applicability of the DASP (including the DASR) to MAO-AM regarding force assigned aircraft and crew.

9.1.5.9 **ADF doctrine—C2 provisions to account for the relationship between MAO-AM and force assigned commanders.** ADF doctrine has established C2 provisions to account for the relationship between MAO-AM and force assigned commanders—specifically, TECHCON. TECHCON is 'the provision of specialist and technical advice by designated authorities for the management and operation of forces.[12]'

9.1.5.10 By convention (and consistent with ADF-P-0 *Command*[13]) MAO-AMs retain TECHCON for force assigned aircraft and crew. ADF-P-0 Command specifies:

> *Capability managers exercise techcon through advice to the theatre commander for assigned forces ….*
>
> *… For an operational commander, techcon advice will relate to the employment of capabilities so that they are used within their operating parameters ….*

9.1.5.11 C2, as described in ADF-P-0 Command, provides an operational commander the necessary freedom to reject TECHCON advice, as follows:

> *Techcon advice may not be altered but may be rejected in part, or in total, by a commander in consideration of operational factors and within their span of command …*

9.1.5.12 DASF obligations on MAOs, considered against the ability of an operational commander to reject TECHCON advice, infer a number of tasks:

1. **on the MAO-AM[14]:**
    i. to be informed of the operational context in providing any TECHCON advice
    ii. to be available and responsive to operational commanders' requests for TECHCON advice

Superseded

iii. to *administer* Command Clearances[15] consistent with the operational commander's decisions regarding TECHCON advice -including any necessary risk management following an operational commander's decision to operate an aircraft outside its 'approved standards and limitations

Note the obligation to 'administer' the Command Clearance should not be read as an obligation on the MAO-AM to replicate or endorse the 'decision to proceed' that the operational commander has already made. Rather, the obligation on the MAO-AM to administer the Command Clearance is a recognition that:

- A Command Clearance is the system for managing operation of an aviation system outside its 'approved standards and limitations'—across the spectrum of conflict.
- The MAO is resourced (ie has the staff, expertise and processes to conduct informed, capability specific, risk management) to risk manage the ongoing safe operation of the aircraft—and the JFACC is not.
- Operation of the aircraft following an exceedance of its 'approved standards and limitations' requires risk management—both immediate and ongoing[16].

2. **on the operational commander:**

i. to provide the MAO-AM sufficient information to understand the operational context

ii. to weigh the operational imperative against the impact on the capability in considering any TECHCON advice

iii. to formally document the risk(s) they are accepting by setting aside the MAO-AM-provided TECHCON advice, to meet their operational imperative

iv. to inform the MAO-AM of any circumstances in which the operational commander has rejected TECHCON advice - to enable the MAO-AM to administer a Command Clearance, and conduct any necessary risk management.

9.1.5.13 **Historical operational experience.** Historical RAAF C2 constructs were not suitable. The Jones-Bostock affair[17] in World War II is an example of a failure of C2 in dealing with the relationship between an operational commander and a TECHCON authority[18]. It illustrates the importance of both a suitable C2 structure, and constructive interpersonal relationships between the TECHCON authority and the operational commander.

9.1.5.14 **Recent operational history.** Recent operational history indicates that doctrinal C2 provisions are suitable. Recent operational experience evidences that:

1. TECHCON provides a suitable C2 arrangement between MAO-AMs and operational commanders

2. there are suitable personnel posted to MAO-AM and senior Air Operations Centre positions to support effective interpersonal relationships.

Superseded

9.5.1 Introduction

9.5.1.1 The purpose of this chapter is to provide MAOs with guidance when seeking new (or updated) Defence navigation approvals, for Aircraft operations in airspace involving either:

1. Performance Based Navigation (PBN)
2. Reduced Vertical Separation Minima (RVSM)
3. North Atlantic High-Level Airspace (NAT HLA).

9.5.1.2 A MAO must obtain DASA approval to conduct specified Defence navigation operations—DASR SPA.50 refers. MAOs require both:

1. a Military Type Certificate (MTC) (or design approval of changes to the MTC, under DASR Part 21) detailing the necessary equipment to support the Defence navigation approval
2. an updated Military Air Operator Certificate (MAOC) Operations Specification (OpSpec) to include a 'Specific Approval', under DASR SPA.50.

9.5.1.3 Approval to operate in PBN, RVSM or NAT HLA airspace requires demonstration that:

1. the aircraft is technically capable of conducting the requested operations (also known as 'aircraft eligibility')
2. the relevant DASR Part 21J organisation has implemented the continued airworthiness requirements for the required operations
3. the MAO has updated its Flying Management System (FMS) for the requested operations (including, for example, that appropriate training is in place, aircrew competence has been assessed, and associated OIP has been published).

9.5.1.4 The Defence navigation approvals that MAOs can request are the Defence equivalent of the civil navigation requirements defined by[19]:

1. CASA Civil Aviation Order (CAO) 20.91 – (Instructions and Directions for Performance Based Navigation) Instrument 2014
2. the CASA AC 91 series – Performance Based Navigation
3. Civil Aviation Safety Regulation (CASR) Part 91.655 – Reduced Vertical Separation Minima (RVSM) Airspace
4. ICAO NAT Doc 007 - North Atlantic Operations and Airspace Manual.

9.5.1.5 Relevant acronyms, abbreviations and additional reference can be found at Annex A.

Superseded

9.5.2 Navigation Approvals - Background

9.5.2.1 PBN, RVSM and NAT HLA requirements form part of an internationally recognised framework of area-based navigation capabilities for Aircraft[20], based on the exploitation of:

1. the Global Navigation Satellite System (GNSS)
2. on-board Aircraft systems.

9.5.2.2 International Civil Aviation Organisation (ICAO) member nations commenced introducing these navigation requirements in 2001. For Australia, CASA CAO 20.18 mandated the installation of GNSS into all civil Instrument Flight Rules (IFR) Aircraft WEF 4 Feb 16. On that date, the Australian Back-up Navigation Network (BNN) was activated, resulting in approximately 200 (traditional) terrestrial navigation aids being withdrawn from service in Australia (approximately 50%). Therefore, from that date, Australia effectively became GNSS-based PBN and RVSM airspace.

9.5.2.3 While State Aircraft are not bound to the Civil Aviation Act 1988 (Cth), Defence aerospace platforms need to regularly use both domestic and international civil and military airspace for their Defence roles. The tailored application of PBN, RVSM and NAT HLA requirements in Defence Aircraft will ensure that Defence aviation assets can continue to maximise their operational effectiveness. Additionally, the Australian Government's Aviation White Paper—Towards 2050 noted that 'Defence, in collaboration with Air Services, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'[21].

9.5.2.4 **PBN operations.** PBN encompasses two lateral navigation specification suites:

1. Required Navigation Performance (RNP)
2. aRea NAVigation (RNAV).

9.5.2.5 The difference is that On-Board Performance Monitoring and Alerting (OBPMA) is required for RNP[22], but not for RNAV.

9.5.2.6 **RVSM operations.** RVSM applies to operations in airspace between Flight Level (FL) 290 and FL 410 inclusive, where a 1000 ft reduced vertical separation minimum is applied.

9.5.2.7 **NAT HLA operations.** NAT HLA operations apply in the North Atlantic, between FL 285 and FL 420 (inclusive), in the airspace linking Europe and North America. This is the busiest oceanic airspace in the world, with limited control and communications coverage. Successful Aircraft separation depends on applying the highest standards of horizontal and vertical navigation performance, and on aircrew operating discipline.

9.5.3 Navigation Approval—Education and Training Development Guidance

9.5.3.1 MAO education and self-training development guidance is available below. The guidance supports MAO development or acceptance of extant training materials that allow the qualification of aircrew for the navigation approvals requested.

1. PBN and RVSM Education and Training Guidance for Military Air Operators

Superseded

2. Example PBN - RVSM Multiple Choice Aircrew Assessment Quizzes Operators

3. Example PBN - RVSM Quick Reference Handbook Operational Summary

9.5.4 Defence Navigation Approval[23] Process

9.5.4.1 DASR SPA.50 and its complementary DASR Form 1307 Application for Navigation Specification Approval, are based on CASA (ie ICAO) requirements. The form is used to:

1. assist MAOs manage their navigation approval requests, by listing required compliance evidence against PBN, RVSM and NAT HLA requirements
2. support complementary MAO risk management processes
3. support MAO and DASA evidence review
4. support a complementary major change to the Type Certification Basis (TCB) where the Aircraft have not previously demonstrated meeting PBN, RVSM and NAT HLA requirements. [24] [25],

9.5.4.2 **Alternative demonstration of compliance.** As of 2023, CASA only specifically provides approvals for PBN RNP-AR operations. Other PBN specifications are automatically considered 'approved' if they are listed in relevant Aircraft OIP (including the AFM)—this is normal practice in civil aviation. However, most non-civil-derivative military platforms do not typically provide statements of compliance with PBN, RVSM and NAT HLA requirements in their OIP. In these military cases, DASA may accept compliance with civil standards through alternative means, by establishing equivalent performance. This involves either, or a combination of[26]:

1. demonstrating that equipment function and performance meets the intent of (but not strict compliance with) the relevant civil standard
2. demonstrating that the use of operational procedures can meet the same function, integrity and OBPMA performance requirements.

9.5.4.3 The most common reasons non-civil derivative military platforms have difficulty achieving compliance with PBN, RVSM and NAT HLA requirements are:

1. the absence of Technical Standard Order (TSO)-approved equipment
2. limited or no evidence of compliance with system functional, integrity or OBPMA performance requirements.

9.5.4.4 Early DASA engagement should be sought for demonstrations via equivalency— to seek assistance in defining the scope of compliance evidence required and likely timelines, and to confirm that a navigation approval is possible before the applicant commits significant resources. Where operational urgency applies, MAOs should consider temporarily applying for less precise[27] navigation approvals—which can be demonstrated more easily—while pursuing more precise navigation approvals in parallel over a less constrained timeframe.

Superseded

9.5.5 DASR Form 1307 – Application for Navigation Specification Approvals

9.5.5.1 MAOs can request Defence navigational approvals using DASR Form 1307. Each approval is categorised as either 'core', 'non-core', 'supplemental', and 'other', as shown below.

9.5.5.2 **Core approvals.** Core approvals are simpler to process than non-core approvals, and include:

1. RNAV 1
2. RNAV 2
3. RNAV 5
4. RNP 1
5. RNP 2
6. RNP APCH, including:
    i. LNAV
    ii. LNAV/VNAV
    iii. LP
    iv. LPV

9.5.5.3 **Non-Core approvals.** Non-core approvals require a more complex compliance process and evidence; and include those specifications that are detailed in other regulatory documents, but are administered in accordance with the nominal PBN approval process (ie RVSM)[28] Non-core approvals include:

1. RNAV 10 (RNP 10)
2. RNP 0.3 (Helicopter)
3. RNP 4
4. RNP AR (RNP AR APCH and RNP AR DP Operations may include One Engine Inoperative (OEI) procedures), including:
    i. RNP AR APCH
    ii. RNP AR DP
5. A-RNP
6. RVSM.

9.5.5.4 **Supplemental approvals.** Supplemental approvals either support another approval, provide an alternate means to support an approval, or provide supplemental navigational capabilities. However, they do not exist in isolation (ie they are complementary to selected core and non-core approvals). Supplemental approvals include:

1. APV / Baro-VNAV

Superseded

2. Radius to Fix (RF)

3. Fixed Radius Transition (FRT)

4. Time of Arrival Control (TOAC)

5. use of suitable area navigation systems on conventional routes and procedures (both en route and terminal).

9.5.5.5 **Other approvals.** Other approvals are specific or location-based, and include:

1. NAT HLA.

9.5.5.6 A MAO may use the same DASR Form 1307 for multiple approvals. Note, some of the more precise Defence navigation approvals automatically include approval for less precise Defence navigation approvals—this is known as 'nesting'. For example, if DASA awards an approval for RNP 4, DASA will automatically consider approvals for RNP 5 and RNP 10.

9.5.6 Applying for Navigation Approvals

9.5.6.1 To gain DASA navigation approval, the applicant must:

1. complete DASR Form 1307

2. submit the required evidence against the approval(s) selected.

9.5.6.2 MAOs should submit applications to DASA at least 90 days prior to the required navigation operations. This allows for the resolution of potential shortfalls against the requested approval(s) before the major change to the TCB and applicant OpSpec.

9.5.6.3 To provide a navigation approval, DASA assesses each approval's compliance evidence against three navigation approval component requirements. The three components are the same for each approval, but the level of detail differs dependent on the approval chosen. The three navigation component requirements are:

1. **Component 1**: Initial Airworthiness and Aircraft eligibility requirements.

2. **Component 2**: Continued Airworthiness requirements.

3. **Component 3**: Flight operations procedures and training requirements.

9.5.6.4 **DASR Form 1307 preparation.** Applicants must use DASR Form 1307 to support review of the evidence requirements of each navigation approval sought. In order of increasing complexity (ie time to process), application evidence options are:

1. The application is based upon an **existing** navigation approval (eg the Aircraft eligibility and continuing airworthiness requirements for the RNP 2 approval can be based on navigation approvals already held for either RNP 1, RNP APCH or RNP AR).

2. The application is based upon a **prior certification** against relevant navigation approval requirements[29].

Superseded

3. The application is based upon **demonstration** that on-board equipment (and its installation) **meets** the navigation approval's functional, display, alerting and performance requirements[30].

4. The application is based upon **demonstration** that on-board equipment (and its installation), when supported by defined operational controls, **provides functional equivalence** to the approval's functional, display, alerting and performance requirements.

5. The application is based upon a **DASA-agreed alternate approach** to achieving **functional equivalence** to the approval's functional, display, alerting and performance requirements.

9.5.6.5 **Navigation approval evidence.** The following can assist MAOs in collating or generating the evidence required:

1. **For component 1 - Initial Airworthiness and Aircraft eligibility.** DASR Form 1307 uses question sets to guide applicants through the necessary evidence. MAOs may demonstrate Aircraft eligibility through any one of the following:

   i. the CAA/MAA-approved AFM confirms that the Aircraft **is capable** of undertaking the required operations, with a CRE assessment that either:

      – confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

      – identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

   ii. the CAA/MAA confirms that the Aircraft **has been certified** for the required PBN, RVSM and NAT HLA operations, with a CRE assessment that either:

      – confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

      – identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

   iii. a technical assessment of the design demonstrates compliance with the prescribed airworthiness requirements for the specified operations.

2. **For Component 2 - Continued Airworthiness.** DASR Form 1307 guides applicants through the evidence necessary to demonstrate that navigation system components will remain compliant with the approved Type Design[31] while in-Service, and that the navigation databases used will remain valid during operations.

3. **For Component 3 - Flight operations procedures and training.**

   i. Flight operations procedures. DASR Form 1307 lists operations documentation requirements for each navigation approval, including[32]:

      – operating policies to support selected operations under all normal and emergency conditions

Superseded

- flight crew procedures and checklists for all navigation approvals for the Aircraft Type
- Minimum Equipment Lists (MELs, or their equivalent) for each navigation approval
- planning and management OIP (including for navigation database updates and validation, and mission planning procedures)
- OIP for the reporting and management of navigation database discrepancies and errant Aircraft behaviour observed during approved operations.

ii. **Flight operations training.** DASR Form 1307 lists both generic and specific Flight operations training requirements for each navigation approval, including:

- Flight crew training programs, competency assessments, currency, and training records
- maintenance staff training requirements.

9.5.6.6 **Navigation approval evidence shortfall resolution.** Where DASR Form 1307 requirements cannot be met, the form supports DASA consultation and shortfall resolution. The applicant must demonstrate functional equivalence to published requirements. Shortfall resolution involves the:

1. DASA Desk Officer and applicant reviewing shortfalls and discussing possible pathways to demonstrating compliance
2. applicant proposing an appropriate alternative to compliance, that demonstrates functional equivalence, for example:
   i. prior alternative CAA/MAA certifications
   ii. operational or crew-based procedural additions that can demonstrate functional equivalence[33].
3. applicant providing evidence that demonstrates functional equivalence, such as[34]:
   i. flight test programs
   ii. operational human factors and workload assessments
   iii. LMPs
   iv. Aircraft Type Design System Safety Assessments
   v. Risk Management Plans and Mission Risk Profiles to define the additional controls required to be incorporated into OIP.

9.5.6.7 **DASR Form 1307 submission.** To finalise the MAO request, the applicant must submit the form and the corresponding evidence data pack, via a MAO request, to dasa-davnops.operationalreviews@defence.gov.au. The data pack should include a summary of the documents attached and a description of each document's purpose towards navigation approval requirement compliance.

Superseded

9.5.6.8 When compliance is demonstrated, and the MTCH has updated the aircraft's TCB (through a DASA approved Major change to Type Design), DASA will add the navigation approval(s) to the OpSpec.

9.5.5.9 Table 1 provides MAOs with a checklist of the evidence required in data packs. Note, not all items are required for all navigation approvals. Additionally—in the case of non-core approvals; or where there is a requirement to demonstrate functional equivalence—this checklist is not exhaustive.

Submission Checklist Item
DASR Form 1307 • In original MS Excel Format
Initial Airworthiness and Aircraft Eligibility • Aircraft Airworthiness documents which provide evidence that the Aircraft is Type Certified for the requested operations (eg AFM and supplements, OEM service letters, Type Certificate Compliance Document). • A description of the relevant Aircraft equipment required for the proposed navigation approvals, including a configuration list of components, and how the system meets applicable requirements.
Continued Airworthiness • A description of the maintenance program used to ensure the continued Airworthiness of the Aircraft for the equipment required for the navigation approval. This need only address those circumstances where additional specific maintenance is required. • Applicable Aircraft Maintenance Manuals for the relevant system/s. • An equipment list for the navigation approvals requested (make, model & part—both hardware & software). • Applicable extracts from the Minimum Equipment List (Airworthiness items) and applicable instructions that demonstrate identification and management of:

Superseded

- any unserviceability that affects the conduct of any approved operation
- the systems that GNSS interfaces with, so that in the event of the GNSS being inoperative, the full impact of the failure can be determined
- The rationale for selection of specific MEL items as having an impact on safe operations, and any associated risk assessments.

Airworthiness - Digital Data

- A description of the method used to receive updates to (including the frequency of updates) and to ensure the validity of the airborne navigation database. This should address the validation of data provided externally and internally; and verification procedures for any internal change to the supplied data
    - **Note:** this should include coverage of all digital navigation data (including map and chart data used in Flight during the conduct of procedures, or for ground verification); and data acquisition, manipulation, and management (to encompass all potential Defence Aircraft operations).
- Evidence that the suppliers of the navigation database comply with the minimum integrity requirements of the most stringent approval requested.

Flight Operations Processes

- Operational procedures (including normal and emergency) published in OIP. These procedures should include Flight planning, pre-flight, inflight and post-flight.

- Procedures should include copies of, or extracts from, OIP covering:
    - operations manuals
    - the AFM
    - checklists
    - contingency procedures
    - QRH (or equivalent)
    - sections of the MEL applicable to the requested operations

Superseded

Training and Qualifications • A description of the proposed aircrew, maintenance and other applicable personnel and specialists' training for the requested operations; and associated competencies and currency requirements (including a copy of the LMP and associated artefacts[35]. • Copies of relevant training syllabi, training proficiency examination and assessment templates and currency assessment templates.

Table 1 – MAO Navigation Approval Submission checklist

Superseded

9.2. Operations Personnel*

Superseded

9.3. Air Operations*

Superseded

9.4. Standard Rules of the Air*

Superseded

9.5 Defence Navigation Approvals

9.1 Introduction

9.1.1 Flight Operations Regulations

9.1.1.1 The Flight Operations DASR provide amplification of Defence's obligations[1] under the WHS Act 2011 in the context of Defence flight operations. The regulations prescribe the accountabilities of the chain of command as they relate to Defence flight operations. For Military Air Operators (MAO), the regulations define management requirements. MAOs are obliged to implement a system of management to comply with applicable DASR and to ensure that their personnel conform to that system of management.

9.1.1.2 The Flight Operations DASR contain regulations for the safe conduct of flight operations by Defence aircraft, including UAS and aircraft operated on behalf of Defence. It includes requirements for training and qualification of all personnel involved in military flight operations.

9.1.1.3 **DASR Aircrew**. The purpose of DASR Aircrew is to assure that Defence aircrew are adequately trained and proficient for employment in a specific role. This includes regulation for the personnel and training aspects of Flying Instruction, Airborne Emergency Training, Crew Resource Management, Aviation Safety training and Flying Logbooks.

9.1.1.4 **DASR AO.Gen — Air Operations General**. DASR Air Operations (AO) General is applicable to all areas of air operations and includes requirements for Orders, Instructions and Publications (OIP) specific to air operations.

9.1.1.5 **DASR ARO – Authority Requirements for Air Operations**. The purpose of DASR ARO — Authority Requirements for Air Operations is to address a range of AO matters, including the following:

1. Statement of Operating Intent and Usage (SOIU), to inform decisions on whether an aircraft design remains safe for operations
2. The Defence Register
3. establishment of the Military Air Operator (MAO).

9.1.1.6 A MAO is the regulated organisation approved by DASA to conduct air operations. The senior member of a MAO is the Accountable Manager (AM), which is usually an O7 commander.

9.1.1.7 The majority of Defence flight operations are conducted under a Military Air Operator Certificate (MAOC) issued to a MAO. The MAO is usually a Force Element Group (FEG) or equivalent.

9.1.1.8 **DASR FSTD – Flight Simulation Training Devices.** The purpose of DASR FSTD — Flight Simulation Training Devices is to assure aviation operations augmented by a Flight Simulation Training Device (FSTD) are adequately controlled and managed. Approval of an FSTD is via an Installation Operating Permit (IOP).

9.1.1.9 **DASR FT – Flight Test.** The purpose of DASR FT — Flight Test is to assure that a MAO only undertakes those Flight Test activities it is capable of safely conducting, including that the tests are

Superseded

conducted under appropriate airworthiness controls using suitable personnel, processes and data. Flight Test is a subset of Defence Test and Evaluation (T&E). Flight Test activities involve, to varying extents, the operation of an aircraft outside of its existing type design certification. A MAO requires a specific privilege to be able to conduct Flight Test activities of this nature.

9.1.1.10 **DASR NDR – Non-Defence Registered Aircraft.** The purpose of DASR Non-Defence Registered Aircraft (NDRA) is to clarify Defence Aviation Safety Program (DASP) obligations of Defence when operating non Defence registered aircraft.

9.1.1.11 **DASR ORO – Organisation Requirements for Air Operations.** The purpose of DASR ORO Organisation Requirements for Air Operations is to assure Defence aircraft are operated with adequate controls to ensure safety of flight. They include the following:

1. Flight Operations—ensuring aircraft are operated in approved roles, with correct mission equipment, to approved procedures and instructions
2. Flying Management Systems
3. Appointment of Key Staff
4. Aircrew Competency System
5. Flight Authorisation System
6. Aeronautical Life Support Equipment
7. Aircraft Crewing (including Captaincy)
8. Oxygen Management (including Flight Crew and Supplemental Oxygen)
9. Authorised Electronic Equipment
10. Carriage of Personnel on Defence Aircraft
11. Use of Role Equipment
12. Flight Recorder(s) and Locating Equipment.

9.1.1.12 **DAS RoA – Rules of the Air.** The purpose of DASR RoA — Rules of the Air is to assure that the rules stipulated within Defence Aeronautical Information Publication (AIP), as they apply to Defence Aviation, are harmonised with ICAO and national civil practice wherever practical. The intent is that Defence Aviation will have due regard for the safety of navigation of civil aircraft.

9.1.1.13 **DASR SPA – Specific Purpose Approval.** The purpose of DASR SPA — Specific Purpose Approval is to assure that certain Defence Aviation activities are conducted safely. The scope of DASR SPA includes Command Clearances, Low Flying, Flypasts and Flying Displays, Defence Long Range Operations and Night Vision Imaging System operations.

9.1.1.14 **DASR UAS – Uncrewed Aircraft Systems.** The purpose of DASR UAS — Uncrewed Aircraft Systems is to assure the safe operation of UAS. The regulations account for the range of UAS complexity, design pedigree and mass through three different categories: [type] certified category UAS, specific category UAS and open category UAS.

Superseded

9.1.2 Flight Operations Compliance

9.1.2.1 DASA approved aviation organisations implement DASR FLTOPS through a Command approved Flying Management System (FMS) that include:

1. a framework of controls
2. approved orders, instructions and publications
3. the operation of crewed and uncrewed aircraft in approved roles, with correct mission equipment, by qualified and authorised individuals
4. a safety framework that supports compliance with statutory safety obligations and enables risk-based command decisions to deliver capability
5. a system to enable commanders to eliminate and minimise risks SFARP.

9.1.2.2 While the Defence Aviation Safety Framework (DASF) establishes a structure for the management of aviation safety within Defence, responsibility for ensuring the safe operation of aviation systems rests with the chain of command. In the assure/ensure balance, the responsibility to ensure compliance and conformance with the Flight Operations regulations lies largely with the Accountable Manager (AM) of the MAO, ACD Service Provider (ACDSP), or ABM Operator (ABMO). AMs are accountable for:

1. the creation and internal validation of local systems of management that are capable of effectively complying with the requirements of applicable DASR, to the defined scope and level contained in the Military Air Operator Certificate(MAOC), Operational Compliance Statement (OCS), Operations Specification (OpSpec), Air Cargo Service Provider Certificate (ACSPC) and Air Battle Management Operator Certificate (ABMOC)
2. liaison with DASA during development, implementation and application of the system of management, to ensure initial and ongoing compliance.

9.1.2.3 DASA, the MAO, ACDSP and ABMO have overlapping and complementary responsibilities in the Oversight and Enforcement, and Safety Investigation areas of the DASF. However, aviation safety is always a command responsibility. Commanders and managers are therefore accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

9.1.3 Command Clearances

9.1.3.1 The DASP contains flexibility provisions to assist commanders faced with compelling operational imperatives to make informed decisions regarding regulatory compliance. These provisions become particularly relevant in situations where commanders are expected to operate Defence aircraft at markedly higher levels of risk than normal[2], to achieve non-discretionary activities in support of Australia's national interests. Such decisions must be made at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised SFARFP.

9.1.3.2 In the FLTOPS regulations, Commanders may utilise DASR SPA.10 - Command Clearance (CC), to operate an aviation system outside the system's configuration, role, environment, limitation

Superseded

or condition within a risk based framework. Other flexibility provisions provided in Airworthiness DASR, such as the Military Permit to Fly (MPTF), and those under DASR GR.80 are discussed further in DASPMAN Volume 3, Section 6. However, before a MAO utilises a flexibility provision under the auspices of DASR GR.80, the application must be forwarded to, and approved by, the Authority.

9.1.3.3 The Command Clearance process, available to MAOs under DASR SPA.10, differs from other flexibility provisions, in so far as it is not issued by the Authority, rather a commander at an appropriate level who can make the decision to proceed without further minimising risks commensurate with the clearance being granted. The Command Clearance process should not be used in the first instance to allow an aircraft to fly outside of its approved CRE. It should only be utilised when absolutely necessary to enable an aircraft to fly when the normal methods of ensuring airworthiness cannot be met and it must never be used for administrative convenience.

9.1.3.4 To summarise the process, when aircrew find a fault with their aircraft, a defect should be raised against the aircraft and then cleared, or deferred, by the appropriate maintenance organisation before returning to flight. An exception to this occurs when the defect is allowed under the aircraft's Minimum Equipment List (MEL) of allowable defects. In this case the aircrew may continue with their planned flight, giving due regard to the risks associated with the MEL item. If this process is not suitable or allowed under the DASR, then the MPTF process should be undertaken. Noting that the operational imperative influences the timeline for an MPTF, the captain may seek a Command Clearance through their chain of command.

9.1.3.5 The MAO should only process and approve a Command Clearance when considered with respect to the mission concerned, whether it is urgent or compelling, and the associated elevated level of risk that a Command Clearance would provide. As per all military aviation activities, the Command Clearance system requires appropriate risk consideration and the 7-Step Risk Management process must be followed. The Command Clearance system is there to enable a commander to fly aircraft outside of the approved CRE and as such, the granting of the clearance should not be made in haste or considered lightly.

9.1.3.6 For further information on Military Permits to Fly and Command Clearances see Chapter 5.3 and DASR SPA.10.

9.1.4 Historical context of Flight Operations Related Regulation

9.1.4.1 The Convention on International Civil Aviation (Chicago Convention 1944) set the basis for current civil aviation regulations and founded the International Civil Aviation Organisation (ICAO). Article 3 of the convention states:

> **This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft.**

9.1.4.2 In the Australian context, State Aircraft are defined as 'aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country'[3]. As Defence aircraft are included within this broad category, they are thereby exempt from all requirements contained within the civil aviation regulations.

9.1.4.3 To provide the directed level of aviation capability, Defence aviation platforms need to regularly use both domestic and international civil and military airspace. In doing so, military operators voluntarily adhere to ICAO flight procedures, including 'flying with due regard for the safety

Superseded

of navigation of civil aircraft', because militaries have a natural duty of care to all airspace users. Additionally, the Australian Government's National Aviation Policy White Paper notes that 'Defence, in collaboration with Airservices, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'. However, not all ICAO or civil aviation requirements are suited to military operations. Militaries therefore require bespoke regulatory systems to provide for operational capability and an equivalent level of safety. Hence, the tailored application of both civil and military requirements will ensure that Defence aircraft can continue to maximise their operational effectiveness.

9.1.5 MAO-AM Accountabilities and Responsibilities for Force Assigned Aircraft and Crew

9.1.5.1 **DASF and the spectrum of conflict.** The Defence Aviation Safety Framework (DASF) applies throughout the spectrum of conflict. While there are flexibility provisions, Joint Directive 21/2021 - *The Defence Aviation Safety Framework* contains no exceptions to the applicability of the DASF, in totality, during times of conflict.

9.1.5.2 **Accountability.** The DASF aligns accountability with control. Specifically [4]:

> *Commanders and managers are … accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.*

9.1.5.3 **TECHCON.** ADF Command and Control (C2) doctrine has a suitable means of control for MAO-AMs to exercise their accountability for force assigned aircraft and crew—Technical Advisory Control (TECHCON)[5] [6].

9.1.5.4 **Purpose.** The DASF provides amplification of Defence's safety obligations in the Defence Aviation Environment regarding the application of the:

1. *Work Health and Safety Act 2011*
2. *Work Health and Safety Regulations 2011*
3. various Codes of Practice made pursuant to the principal Act from time to time [7].

9.1.5.5 **Suitability.** The DASF is suitable for application across the spectrum of conflict. The DASF contains 'flexibility provisions to assist commanders faced with compelling operational imperatives.'[8] Notwithstanding, the DASF requires the application of flexibility provisions based on 'informed judgements … at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised so far as is reasonably practicable.'[9] This requirement drives the need for MAO-AMs to exercise TECHCON for force assigned aircraft—as the Joint Force Air Component Commander (JFACC) per se does not hold the knowledge, resources, structures or staff to support the risk management necessary to enact flexibility provisions[10].

9.1.5.6 **Division of duties between operational commanders and TECHCON authorities.** Note, for force assigned aircraft and crews, a court would likely find a MAO-AM (with TECHCON authority), and an operational commander (eg JFACC with operational command), have the same duty under s.16 WHS Act. However, the court would likely consider the capacity to influence and control, and thus

Superseded

discharge the duty by each commander will vary, depending on the factual circumstances of the situation.

9.1.5.7 **WHS Act applicability throughout the spectrum of conflict.** The WHS Act applies throughout the spectrum of conflict. Anecdotally, there is a common misconception that, the WHS Act does not apply during times of conflict. *The CDF declaration* makes clear that the obligations on 'officers, workers and other persons' are largely unchanged between peace, warlike operations and non-warlike operations. Specifically:

1. *the CDF declaration* renders inapplicable to warlike operations or non-warlike operations only the sections of the WHS Act that deal with[11]:
    i. 'Duty to notify of notifiable incidents'
    ii. 'Duty to preserve incident sites'.

9.1.5.8 **MAO-AM accountabilities/responsibilities.** MAO-AM accountabilities and responsibilities are unchanged for force assigned aircraft and crew. The DASP Manual, consistent with Joint Directive 21/2021, places accountabilities and responsibilities on MAO-AM. While there are flexibility provisions, the DASP Manual contains no exceptions to the applicability of the DASP (including the DASR) to MAO-AM regarding force assigned aircraft and crew.

9.1.5.9 **ADF doctrine—C2 provisions to account for the relationship between MAO-AM and force assigned commanders.** ADF doctrine has established C2 provisions to account for the relationship between MAO-AM and force assigned commanders—specifically, TECHCON. TECHCON is 'the provision of specialist and technical advice by designated authorities for the management and operation of forces.[12]'

9.1.5.10 By convention (and consistent with ADF-P-0 *Command*[13]) MAO-AMs retain TECHCON for force assigned aircraft and crew. ADF-P-0 Command specifies:

> *Capability managers exercise techcon through advice to the theatre commander for assigned forces ….*
>
> *… For an operational commander, techcon advice will relate to the employment of capabilities so that they are used within their operating parameters ….*

9.1.5.11 C2, as described in ADF-P-0 Command, provides an operational commander the necessary freedom to reject TECHCON advice, as follows:

> *Techcon advice may not be altered but may be rejected in part, or in total, by a commander in consideration of operational factors and within their span of command …*

9.1.5.12 DASF obligations on MAOs, considered against the ability of an operational commander to reject TECHCON advice, infer a number of tasks:

1. **on the MAO-AM[14]:**
    i. to be informed of the operational context in providing any TECHCON advice
    ii. to be available and responsive to operational commanders' requests for TECHCON advice

Superseded

iii. to *administer* Command Clearances[15] consistent with the operational commander's decisions regarding TECHCON advice -including any necessary risk management following an operational commander's decision to operate an aircraft outside its 'approved standards and limitations

Note the obligation to 'administer' the Command Clearance should not be read as an obligation on the MAO-AM to replicate or endorse the 'decision to proceed' that the operational commander has already made. Rather, the obligation on the MAO-AM to administer the Command Clearance is a recognition that:

- A Command Clearance is the system for managing operation of an aviation system outside its 'approved standards and limitations'—across the spectrum of conflict.
- The MAO is resourced (ie has the staff, expertise and processes to conduct informed, capability specific, risk management) to risk manage the ongoing safe operation of the aircraft—and the JFACC is not.
- Operation of the aircraft following an exceedance of its 'approved standards and limitations' requires risk management—both immediate and ongoing[16].

2. **on the operational commander:**

i. to provide the MAO-AM sufficient information to understand the operational context

ii. to weigh the operational imperative against the impact on the capability in considering any TECHCON advice

iii. to formally document the risk(s) they are accepting by setting aside the MAO-AM-provided TECHCON advice, to meet their operational imperative

iv. to inform the MAO-AM of any circumstances in which the operational commander has rejected TECHCON advice - to enable the MAO-AM to administer a Command Clearance, and conduct any necessary risk management.

9.1.5.13 **Historical operational experience.** Historical RAAF C2 constructs were not suitable. The Jones-Bostock affair[17] in World War II is an example of a failure of C2 in dealing with the relationship between an operational commander and a TECHCON authority[18]. It illustrates the importance of both a suitable C2 structure, and constructive interpersonal relationships between the TECHCON authority and the operational commander.

9.1.5.14 **Recent operational history.** Recent operational history indicates that doctrinal C2 provisions are suitable. Recent operational experience evidences that:

1. TECHCON provides a suitable C2 arrangement between MAO-AMs and operational commanders

2. there are suitable personnel posted to MAO-AM and senior Air Operations Centre positions to support effective interpersonal relationships.

Superseded

9.5.1 Introduction

9.5.1.1 The purpose of this chapter is to provide MAOs with guidance when seeking new (or updated) Defence navigation approvals, for Aircraft operations in airspace involving either:

1. Performance Based Navigation (PBN)
2. Reduced Vertical Separation Minima (RVSM)
3. North Atlantic High-Level Airspace (NAT HLA).

9.5.1.2 A MAO must obtain DASA approval to conduct specified Defence navigation operations—DASR SPA.50 refers. MAOs require both:

1. a Military Type Certificate (MTC) (or design approval of changes to the MTC, under DASR Part 21) detailing the necessary equipment to support the Defence navigation approval
2. an updated Military Air Operator Certificate (MAOC) Operations Specification (OpSpec) to include a 'Specific Approval', under DASR SPA.50.

9.5.1.3 Approval to operate in PBN, RVSM or NAT HLA airspace requires demonstration that:

1. the aircraft is technically capable of conducting the requested operations (also known as 'aircraft eligibility')
2. the relevant DASR Part 21J organisation has implemented the continued airworthiness requirements for the required operations
3. the MAO has updated its Flying Management System (FMS) for the requested operations (including, for example, that appropriate training is in place, aircrew competence has been assessed, and associated OIP has been published).

9.5.1.4 The Defence navigation approvals that MAOs can request are the Defence equivalent of the civil navigation requirements defined by[19]:

1. CASA Civil Aviation Order (CAO) 20.91 – (Instructions and Directions for Performance Based Navigation) Instrument 2014
2. the CASA AC 91 series – Performance Based Navigation
3. Civil Aviation Safety Regulation (CASR) Part 91.655 – Reduced Vertical Separation Minima (RVSM) Airspace
4. ICAO NAT Doc 007 - North Atlantic Operations and Airspace Manual.

9.5.1.5 Relevant acronyms, abbreviations and additional reference can be found at Annex A.

Superseded

9.5.2 Navigation Approvals - Background

9.5.2.1 PBN, RVSM and NAT HLA requirements form part of an internationally recognised framework of area-based navigation capabilities for Aircraft[20], based on the exploitation of:

1. the Global Navigation Satellite System (GNSS)
2. on-board Aircraft systems.

9.5.2.2 International Civil Aviation Organisation (ICAO) member nations commenced introducing these navigation requirements in 2001. For Australia, CASA CAO 20.18 mandated the installation of GNSS into all civil Instrument Flight Rules (IFR) Aircraft WEF 4 Feb 16. On that date, the Australian Back-up Navigation Network (BNN) was activated, resulting in approximately 200 (traditional) terrestrial navigation aids being withdrawn from service in Australia (approximately 50%). Therefore, from that date, Australia effectively became GNSS-based PBN and RVSM airspace.

9.5.2.3 While State Aircraft are not bound to the Civil Aviation Act 1988 (Cth), Defence aerospace platforms need to regularly use both domestic and international civil and military airspace for their Defence roles. The tailored application of PBN, RVSM and NAT HLA requirements in Defence Aircraft will ensure that Defence aviation assets can continue to maximise their operational effectiveness. Additionally, the Australian Government's Aviation White Paper—Towards 2050 noted that 'Defence, in collaboration with Air Services, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'[21].

9.5.2.4 **PBN operations.** PBN encompasses two lateral navigation specification suites:

1. Required Navigation Performance (RNP)
2. aRea NAVigation (RNAV).

9.5.2.5 The difference is that On-Board Performance Monitoring and Alerting (OBPMA) is required for RNP[22], but not for RNAV.

9.5.2.6 **RVSM operations.** RVSM applies to operations in airspace between Flight Level (FL) 290 and FL 410 inclusive, where a 1000 ft reduced vertical separation minimum is applied.

9.5.2.7 **NAT HLA operations.** NAT HLA operations apply in the North Atlantic, between FL 285 and FL 420 (inclusive), in the airspace linking Europe and North America. This is the busiest oceanic airspace in the world, with limited control and communications coverage. Successful Aircraft separation depends on applying the highest standards of horizontal and vertical navigation performance, and on aircrew operating discipline.

9.5.3 Navigation Approval—Education and Training Development Guidance

9.5.3.1 MAO education and self-training development guidance is available below. The guidance supports MAO development or acceptance of extant training materials that allow the qualification of aircrew for the navigation approvals requested.

1. PBN and RVSM Education and Training Guidance for Military Air Operators

Superseded

2. Example PBN - RVSM Multiple Choice Aircrew Assessment Quizzes Operators

3. Example PBN - RVSM Quick Reference Handbook Operational Summary

9.5.4 Defence Navigation Approval[23] Process

9.5.4.1 DASR SPA.50 and its complementary DASR Form 1307 Application for Navigation Specification Approval, are based on CASA (ie ICAO) requirements. The form is used to:

1. assist MAOs manage their navigation approval requests, by listing required compliance evidence against PBN, RVSM and NAT HLA requirements
2. support complementary MAO risk management processes
3. support MAO and DASA evidence review
4. support a complementary major change to the Type Certification Basis (TCB) where the Aircraft have not previously demonstrated meeting PBN, RVSM and NAT HLA requirements. [24] [25],

9.5.4.2 **Alternative demonstration of compliance.** As of 2023, CASA only specifically provides approvals for PBN RNP-AR operations. Other PBN specifications are automatically considered 'approved' if they are listed in relevant Aircraft OIP (including the AFM)—this is normal practice in civil aviation. However, most non-civil-derivative military platforms do not typically provide statements of compliance with PBN, RVSM and NAT HLA requirements in their OIP. In these military cases, DASA may accept compliance with civil standards through alternative means, by establishing equivalent performance. This involves either, or a combination of[26]:

1. demonstrating that equipment function and performance meets the intent of (but not strict compliance with) the relevant civil standard
2. demonstrating that the use of operational procedures can meet the same function, integrity and OBPMA performance requirements.

9.5.4.3 The most common reasons non-civil derivative military platforms have difficulty achieving compliance with PBN, RVSM and NAT HLA requirements are:

1. the absence of Technical Standard Order (TSO)-approved equipment
2. limited or no evidence of compliance with system functional, integrity or OBPMA performance requirements.

9.5.4.4 Early DASA engagement should be sought for demonstrations via equivalency— to seek assistance in defining the scope of compliance evidence required and likely timelines, and to confirm that a navigation approval is possible before the applicant commits significant resources. Where operational urgency applies, MAOs should consider temporarily applying for less precise[27] navigation approvals—which can be demonstrated more easily—while pursuing more precise navigation approvals in parallel over a less constrained timeframe.

Superseded

9.5.5 DASR Form 1307 – Application for Navigation Specification Approvals

9.5.5.1 MAOs can request Defence navigational approvals using DASR Form 1307. Each approval is categorised as either 'core', 'non-core', 'supplemental', and 'other', as shown below.

9.5.5.2 **Core approvals.** Core approvals are simpler to process than non-core approvals, and include:

1. RNAV 1
2. RNAV 2
3. RNAV 5
4. RNP 1
5. RNP 2
6. RNP APCH, including:
    i. LNAV
    ii. LNAV/VNAV
    iii. LP
    iv. LPV

9.5.5.3 **Non-Core approvals.** Non-core approvals require a more complex compliance process and evidence; and include those specifications that are detailed in other regulatory documents, but are administered in accordance with the nominal PBN approval process (ie RVSM)[28] Non-core approvals include:

1. RNAV 10 (RNP 10)
2. RNP 0.3 (Helicopter)
3. RNP 4
4. RNP AR (RNP AR APCH and RNP AR DP Operations may include One Engine Inoperative (OEI) procedures), including:
    i. RNP AR APCH
    ii. RNP AR DP
5. A-RNP
6. RVSM.

9.5.5.4 **Supplemental approvals.** Supplemental approvals either support another approval, provide an alternate means to support an approval, or provide supplemental navigational capabilities. However, they do not exist in isolation (ie they are complementary to selected core and non-core approvals). Supplemental approvals include:

1. APV / Baro-VNAV

Superseded

2. Radius to Fix (RF)

3. Fixed Radius Transition (FRT)

4. Time of Arrival Control (TOAC)

5. use of suitable area navigation systems on conventional routes and procedures (both en route and terminal).

9.5.5.5 **Other approvals.** Other approvals are specific or location-based, and include:

1. NAT HLA.

9.5.5.6 A MAO may use the same DASR Form 1307 for multiple approvals. Note, some of the more precise Defence navigation approvals automatically include approval for less precise Defence navigation approvals—this is known as 'nesting'. For example, if DASA awards an approval for RNP 4, DASA will automatically consider approvals for RNP 5 and RNP 10.

9.5.6 Applying for Navigation Approvals

9.5.6.1 To gain DASA navigation approval, the applicant must:

1. complete DASR Form 1307

2. submit the required evidence against the approval(s) selected.

9.5.6.2 MAOs should submit applications to DASA at least 90 days prior to the required navigation operations. This allows for the resolution of potential shortfalls against the requested approval(s) before the major change to the TCB and applicant OpSpec.

9.5.6.3 To provide a navigation approval, DASA assesses each approval's compliance evidence against three navigation approval component requirements. The three components are the same for each approval, but the level of detail differs dependent on the approval chosen. The three navigation component requirements are:

1. **Component 1**: Initial Airworthiness and Aircraft eligibility requirements.

2. **Component 2**: Continued Airworthiness requirements.

3. **Component 3**: Flight operations procedures and training requirements.

9.5.6.4 **DASR Form 1307 preparation.** Applicants must use DASR Form 1307 to support review of the evidence requirements of each navigation approval sought. In order of increasing complexity (ie time to process), application evidence options are:

1. The application is based upon an **existing** navigation approval (eg the Aircraft eligibility and continuing airworthiness requirements for the RNP 2 approval can be based on navigation approvals already held for either RNP 1, RNP APCH or RNP AR).

2. The application is based upon a **prior certification** against relevant navigation approval requirements[29].

Superseded

3. The application is based upon **demonstration** that on-board equipment (and its installation) **meets** the navigation approval's functional, display, alerting and performance requirements[30].

4. The application is based upon **demonstration** that on-board equipment (and its installation), when supported by defined operational controls, **provides functional equivalence** to the approval's functional, display, alerting and performance requirements.

5. The application is based upon a **DASA-agreed alternate approach** to achieving **functional equivalence** to the approval's functional, display, alerting and performance requirements.

9.5.6.5 **Navigation approval evidence.** The following can assist MAOs in collating or generating the evidence required:

1. **For component 1 - Initial Airworthiness and Aircraft eligibility.** DASR Form 1307 uses question sets to guide applicants through the necessary evidence. MAOs may demonstrate Aircraft eligibility through any one of the following:

   i. the CAA/MAA-approved AFM confirms that the Aircraft **is capable** of undertaking the required operations, with a CRE assessment that either:

      – confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

      – identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

   ii. the CAA/MAA confirms that the Aircraft **has been certified** for the required PBN, RVSM and NAT HLA operations, with a CRE assessment that either:

      – confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

      – identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

   iii. a technical assessment of the design demonstrates compliance with the prescribed airworthiness requirements for the specified operations.

2. **For Component 2 - Continued Airworthiness.** DASR Form 1307 guides applicants through the evidence necessary to demonstrate that navigation system components will remain compliant with the approved Type Design[31] while in-Service, and that the navigation databases used will remain valid during operations.

3. **For Component 3 - Flight operations procedures and training.**

   i. Flight operations procedures. DASR Form 1307 lists operations documentation requirements for each navigation approval, including[32]:

      – operating policies to support selected operations under all normal and emergency conditions

Superseded

- flight crew procedures and checklists for all navigation approvals for the Aircraft Type
- Minimum Equipment Lists (MELs, or their equivalent) for each navigation approval
- planning and management OIP (including for navigation database updates and validation, and mission planning procedures)
- OIP for the reporting and management of navigation database discrepancies and errant Aircraft behaviour observed during approved operations.

ii. **Flight operations training.** DASR Form 1307 lists both generic and specific Flight operations training requirements for each navigation approval, including:

- Flight crew training programs, competency assessments, currency, and training records
- maintenance staff training requirements.

9.5.6.6 **Navigation approval evidence shortfall resolution.** Where DASR Form 1307 requirements cannot be met, the form supports DASA consultation and shortfall resolution. The applicant must demonstrate functional equivalence to published requirements. Shortfall resolution involves the:

1. DASA Desk Officer and applicant reviewing shortfalls and discussing possible pathways to demonstrating compliance
2. applicant proposing an appropriate alternative to compliance, that demonstrates functional equivalence, for example:
   i. prior alternative CAA/MAA certifications
   ii. operational or crew-based procedural additions that can demonstrate functional equivalence[33].
3. applicant providing evidence that demonstrates functional equivalence, such as[34]:
   i. flight test programs
   ii. operational human factors and workload assessments
   iii. LMPs
   iv. Aircraft Type Design System Safety Assessments
   v. Risk Management Plans and Mission Risk Profiles to define the additional controls required to be incorporated into OIP.

9.5.6.7 **DASR Form 1307 submission.** To finalise the MAO request, the applicant must submit the form and the corresponding evidence data pack, via a MAO request, to dasa-davnops.operationalreviews@defence.gov.au. The data pack should include a summary of the documents attached and a description of each document's purpose towards navigation approval requirement compliance.

Superseded

9.5.6.8 When compliance is demonstrated, and the MTCH has updated the aircraft's TCB (through a DASA approved Major change to Type Design), DASA will add the navigation approval(s) to the OpSpec.

9.5.5.9 Table 1 provides MAOs with a checklist of the evidence required in data packs. Note, not all items are required for all navigation approvals. Additionally—in the case of non-core approvals; or where there is a requirement to demonstrate functional equivalence—this checklist is not exhaustive.

Submission Checklist Item
DASR Form 1307 • In original MS Excel Format
Initial Airworthiness and Aircraft Eligibility • Aircraft Airworthiness documents which provide evidence that the Aircraft is Type Certified for the requested operations (eg AFM and supplements, OEM service letters, Type Certificate Compliance Document). • A description of the relevant Aircraft equipment required for the proposed navigation approvals, including a configuration list of components, and how the system meets applicable requirements.
Continued Airworthiness • A description of the maintenance program used to ensure the continued Airworthiness of the Aircraft for the equipment required for the navigation approval. This need only address those circumstances where additional specific maintenance is required. • Applicable Aircraft Maintenance Manuals for the relevant system/s. • An equipment list for the navigation approvals requested (make, model & part—both hardware & software). • Applicable extracts from the Minimum Equipment List (Airworthiness items) and applicable instructions that demonstrate identification and management of:

Superseded

- any unserviceability that affects the conduct of any approved operation
- the systems that GNSS interfaces with, so that in the event of the GNSS being inoperative, the full impact of the failure can be determined
- The rationale for selection of specific MEL items as having an impact on safe operations, and any associated risk assessments.

Airworthiness - Digital Data

- A description of the method used to receive updates to (including the frequency of updates) and to ensure the validity of the airborne navigation database. This should address the validation of data provided externally and internally; and verification procedures for any internal change to the supplied data
    - **Note:** this should include coverage of all digital navigation data (including map and chart data used in Flight during the conduct of procedures, or for ground verification); and data acquisition, manipulation, and management (to encompass all potential Defence Aircraft operations).
- Evidence that the suppliers of the navigation database comply with the minimum integrity requirements of the most stringent approval requested.

Flight Operations Processes

- Operational procedures (including normal and emergency) published in OIP. These procedures should include Flight planning, pre-flight, inflight and post-flight.

- Procedures should include copies of, or extracts from, OIP covering:
    - operations manuals
    - the AFM
    - checklists
    - contingency procedures
    - QRH (or equivalent)
    - sections of the MEL applicable to the requested operations

Superseded

Training and Qualifications
• A description of the proposed aircrew, maintenance and other applicable personnel and specialists' training for the requested operations; and associated competencies and currency requirements (including a copy of the LMP and associated artefacts[35]. • Copies of relevant training syllabi, training proficiency examination and assessment templates and currency assessment templates.

Table 1 – MAO Navigation Approval Submission checklist

Superseded

9.5.1 Introduction

Annex A - Relevant acronyms, abbreviations and additional references

A.1 Acronyms

Acronyms and abbreviations in this chapter and its supporting forms, which are in addition to those defined in the Defence Glossary and DASR Glossary, are listed below.

Superseded

Acronym	Description
APCH	Approach
AR	Authorisation Required
BARO	Barometric
B-RNAV	Basic RNAV
CAANZ	Civil Aviation Authority of New Zealand
CPDLC	Controller-Pilot Data Link Communications
(E)TSO	(European) Technical Standard Order
EUROCAE	European Organisation for Civil Aviation Equipment
FL	Flight Level
FMS	Flight Management System
FRT	Fixed Radius Transition
IRS	Inertial Reference System
LNAV	Lateral Navigation
LNAV / VNAV	Lateral Navigation with Vertical Navigation
LP	Localiser Performance
LPV	Localiser Performance with Vertical Guidance
MSO	Military Standard Order
NSE	Navigation System Error
PBN	Performance-based Navigation
PCL	Pocket Checklist (also see QRH)
P-RNAV	Precision Area Navigation
QRH	Quick Reference Handbook (also see PCL)
RAIM	Receiver Autonomous Integrity Monitor
RF	Radius to Fix (typically associated with APCH-AR)
RNAV	Area Navigation
RNP	Required Navigation Performance
RNP APCH	RNP Approach

Superseded

A.2 Definitions

Terms that have specific meaning within this chapter and its supporting documents have been replicated from reference material and are listed below.

Airspace

Area(s), route(s) or procedure(s) where: navigation performance requirements have been specified (PBN specifications) and aircraft must hold an authorisation or approval for the specified requirements (PBN specifications) in order to operate in the designated environment; or aircraft navigation equipment carriage , navigation system functional or performance requirements, or aircraft installation requirements have been specified in order for an aircraft to operate in the designated environment.

Aeronautical Radio Incorporated Specification (ARINC) 424 Path Terminator

Aeronautical Radio Incorporated Specification 424 format for coding airborne navigation databases.

Letter of Acceptance (LOA)

A letter issued by a regulatory authority to a data supplier that has demonstrated compliance with the requirements of RTCA DO-200A / EUROCAE ED-76 Standards for processing Aeronautical Data. A LOA may be a Type 1 LOA or a Type 2 LOA.

Performance-based Navigation

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Receiver Autonomous Integrity Monitor

A form of Aircraft-Based Augmentation System (ABAS) whereby a GNSS receiver processor determines the integrity of the GNSS navigation signals using only GPS signals or GPS signals augmented with altitude (baro-aiding). This determination is achieved by a consistency check among redundant pseudo-range measurements. At least one additional satellite needs to be available with the correct geometry over and above that needed for the position estimation, for the receiver to perform the Receiver Autonomous Integrity Monitor (RAIM) function.

RNAV specification

A navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, designated by the prefix RNAV (e.g. RNAV 5, RNAV 1).

RNP specification

Superseded

A navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, designated by the prefix RNP (e.g. RNP 4, RNP APCH).

Type 1 LOA

Provides recognition of a navigation data supplier's compliance with RTCA DO-200A / EUROCAE ED-76 Standards for Processing Aeronautical Data, with no identified compatibility with an aircraft system.

Type 2 LOA

Provides recognition of a navigation data supplier's compliance with RTCA DO-200A / EUROCAE ED-76 Standards for Processing Aeronautical Data, and identifies compatibility of delivered data with particular avionic systems that are identified in the LOA.

A.3 Supporting Documents

The following supporting documents may be relevant to MAOs seeking to implement the Defence Navigation requirements.

Defence References

DASDRM S3C4	*Airworthiness Design Requirements Manual*, Section 3 Chapter 4 – Navigation Systems

Australian Civil Aviation Policy

Australian Government	Australian Transport Safety Regulations 2003
Australian Government	National Aviation White Paper, 2016
CAO 20.18	Aircraft equipment – Basic operational requirements
CAO 20.91	Instructions and directions for PBN
CASR Part 91.655	RVSM airspace
CASR Part 91.660	Performance-based Navigation
CASR Part 21	Certification and airworthiness requirements for aircraft and parts
CASR Part 42	Continuing airworthiness requirements for aircraft and aeronautical products
Part 91 MOS	Manual of Standards - Chapter 22 *Performance Based Navigation*

National Airworthiness Authority Requirements or Standard

US 14 CFR Part 23	Airworthiness standards: Normal, utility, acrobatic, and commuter category airplanes
US 14 CFR Part 25	Airworthiness standards: Transport category airplanes

Superseded

US 14 CFR Part 27	Airworthiness standards: Normal category rotorcraft
US 14 CFR Part 29	Airworthiness standards: Transport category rotorcraft
EASA CS – 23	Certification Specifications for Normal, Utility, Aerobatic, and Commuter Aeroplanes
EASA CS – 25	Certification Specifications for Large Aeroplanes
EASA CS – 27	Certification Specifications for Small Rotorcraft
EASA CS – 29	Certification Specifications for Large Rotorcraft

Advisory Material

AC 21-36	GNSS Equipment: Airworthiness Guidelines
AC 21-38	Aircraft Electrical Load Analysis and Power Source Capacity
AC 91-05	Performance-based navigation
CASR Part 91 GM	GM 91.655 – RVSM airspace
	GM 91.660 – Performance-based navigation
CAAP 35-1	GPS: General installation guidelines
CAANZ AC 91-18	Aircraft software configuration management
EASA AMC 20-4	Airworthiness Approval and Operational Criteria For the Use of Navigation Systems in European Airspace Designated For Basic RNAV Operations
EASA AMC 20-26	Airworthiness Approval and Operational Criteria for RNP Authorisation Required (RNP AR) Operations
EASA AMC 20-27	Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations including APV BARO-VNAV Operations
FAA AC 20-129	Criteria for Approval of Category I and Category II Weather Minima for Approach
FAA AC 20-130A	Airworthiness Approval of Navigation or FMS Integrating Multiple Navigation Sensors
FAA AC 20-138C	Airworthiness Approval: Positioning & Nav Systems
FAA AC 25-15	Approval of Flight Management Systems in Transport Category Airplanes
FAA AC 90-45A	Approval of Area Navigation Systems for use in the U.S. National Airspace System

Superseded

FAA AC 90-96A	Approval of U.S. Operators and Aircraft to Operate under Instrument Flight Rules (IFR) in European Airspace Designated for Basic Area Navigation (B-RNAV) and Precision Area Navigation (P-RNAV)
FAA AC 90-100A	U.S. Terminal and En Route Area Navigation (RNAV) Operations
FAA AC 90-101A	Approval Guidance for RNP Procedures with AR
FAA AC 90-105	Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System
FAA AC 120-29A	Criteria for Approval of Category I and Category II Weather Minima for Approach

Technical Standard Orders

ETSO C106	Air Data Computer
ETSO C115b	Airborne Area Navigation Equipment using Multi-Sensor Inputs
ETSO C129a	Airborne Supplemental Navigation equipment using GPS
ETSO C145	Airborne Navigation Sensors Using GPS Augmented by the Wide Area Augmentation System (WAAS)
ETSO C146	Stand-Alone Airborne Navigation Equipment Using the GPS Augmented by the Wide Area Augmentation System (WAAS)
US MSO C129b	Airborne Supplemental Navigation Equipment Using the Global Positioning System (GPS) / Precise Positioning Service (PPS)
US MSO C145b	Airborne Navigation Sensors Using the Global Positioning System (GPS) /Precise Positioning Service (PPS) for Area Navigation (RNAV) in Required Navigation Performance (RNP) Airspace and for Automatic Dependent Surveillance-Broadcast (ADS-B)
US TSO C106	Air Data Computer
US TSO C115c	FMS using multi-sensor inputs
US TSO C129a	Airborne Supplemental Nav Equipment Using GPS
US TSO C145e	Airborne Navigation Sensors using GPS Augmented by the Satellite Based Augmentation System (SBAS)

Superseded

US TSO C146c	Stand-Alone Airborne Navigation Equipment Using The Global Positioning System Augmented By The Satellite Based Augmentation System
US TSO C196a	Airborne Supplemental Navigation Sensors for Global Positioning System Equipment using Aircraft-Based Augmentation

ICAO documents

Annex 6 to the *Chicago Convention*	Operation of Aircraft
Document 9613 Ed4	Performance Based Navigation (PBN) Manual
Document 9905 Ed2	Required Navigation Performance Authorization Required (RNP AR) Procedure Design Manual
Document 9997 Ed2	Performance Based Navigation (PBN) Operational Approval Manual

European Organisation for Civil Aviation Equipment (EUROCAE) documents

ED-26	Minimum performance specifications for airborne altitude measurements and coding systems
ED-72A	Minimum Operational Performance Specifications for Airborne GPS Receiving Equipment used for Supplemental Means of Navigation
ED-75B	MASPS: Required Navigation Performance for Area Navigation (RNAV)
ED-76	Standards for Processing Aeronautical Data
ED-77	Standards for Aeronautical Information

RTCA Inc. Documents

DO-88	Altimetry
DO-200A	Standards for Processing Aeronautical Data
DO-201A	Standards for Aeronautical Information
DO-208	Minimum Operational Performance Standards for Airborne Supplemental Navigation Equipment using Global Positioning System (GPS)

Superseded

DO-229D	Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment
DO-236B	Minimum Aviation System Performance Standards: Required Navigation Performance for Area Navigation
DO-283A	Minimum OPS Performance Standards for Required Navigation Performance for Area Navigation
DO-316	Minimum Operational Performance Standards for Global Positioning System/Aircraft Base Augmentation System Airborne Equipment

Aeronautical Radio, Inc. (ARINC) Documents

ARINC 424	Navigation Systems Data Base
ARINC 706	Mark 5 Air Data System

Society of Automotive Engineering: Aeronautical Recommended Practices

ARP-920A	Design and Installation of Pitot-Static Systems for Transport Aircraft
ARP-942	Pressure Altimeter Systems

Superseded

9.5.2 Navigation approvals - Background

9.1 Introduction

9.1.1 Flight Operations Regulations

9.1.1.1 The Flight Operations DASR provide amplification of Defence's obligations[1] under the WHS Act 2011 in the context of Defence flight operations. The regulations prescribe the accountabilities of the chain of command as they relate to Defence flight operations. For Military Air Operators (MAO), the regulations define management requirements. MAOs are obliged to implement a system of management to comply with applicable DASR and to ensure that their personnel conform to that system of management.

9.1.1.2 The Flight Operations DASR contain regulations for the safe conduct of flight operations by Defence aircraft, including UAS and aircraft operated on behalf of Defence. It includes requirements for training and qualification of all personnel involved in military flight operations.

9.1.1.3 **DASR Aircrew**. The purpose of DASR Aircrew is to assure that Defence aircrew are adequately trained and proficient for employment in a specific role. This includes regulation for the personnel and training aspects of Flying Instruction, Airborne Emergency Training, Crew Resource Management, Aviation Safety training and Flying Logbooks.

9.1.1.4 **DASR AO.Gen — Air Operations General**. DASR Air Operations (AO) General is applicable to all areas of air operations and includes requirements for Orders, Instructions and Publications (OIP) specific to air operations.

9.1.1.5 **DASR ARO – Authority Requirements for Air Operations**. The purpose of DASR ARO — Authority Requirements for Air Operations is to address a range of AO matters, including the following:

1. Statement of Operating Intent and Usage (SOIU), to inform decisions on whether an aircraft design remains safe for operations
2. The Defence Register
3. establishment of the Military Air Operator (MAO).

9.1.1.6 A MAO is the regulated organisation approved by DASA to conduct air operations. The senior member of a MAO is the Accountable Manager (AM), which is usually an O7 commander.

9.1.1.7 The majority of Defence flight operations are conducted under a Military Air Operator Certificate (MAOC) issued to a MAO. The MAO is usually a Force Element Group (FEG) or equivalent.

9.1.1.8 **DASR FSTD – Flight Simulation Training Devices.** The purpose of DASR FSTD — Flight Simulation Training Devices is to assure aviation operations augmented by a Flight Simulation Training Device (FSTD) are adequately controlled and managed. Approval of an FSTD is via an Installation Operating Permit (IOP).

9.1.1.9 **DASR FT – Flight Test.** The purpose of DASR FT — Flight Test is to assure that a MAO only undertakes those Flight Test activities it is capable of safely conducting, including that the tests are conducted under appropriate airworthiness controls using suitable personnel, processes and data.

Superseded

Flight Test is a subset of Defence Test and Evaluation (T&E). Flight Test activities involve, to varying extents, the operation of an aircraft outside of its existing type design certification. A MAO requires a specific privilege to be able to conduct Flight Test activities of this nature.

9.1.1.10 **DASR NDR – Non-Defence Registered Aircraft.** The purpose of DASR Non-Defence Registered Aircraft (NDRA) is to clarify Defence Aviation Safety Program (DASP) obligations of Defence when operating non Defence registered aircraft.

9.1.1.11 **DASR ORO – Organisation Requirements for Air Operations.** The purpose of DASR ORO Organisation Requirements for Air Operations is to assure Defence aircraft are operated with adequate controls to ensure safety of flight. They include the following:

1. Flight Operations—ensuring aircraft are operated in approved roles, with correct mission equipment, to approved procedures and instructions
2. Flying Management Systems
3. Appointment of Key Staff
4. Aircrew Competency System
5. Flight Authorisation System
6. Aeronautical Life Support Equipment
7. Aircraft Crewing (including Captaincy)
8. Oxygen Management (including Flight Crew and Supplemental Oxygen)
9. Authorised Electronic Equipment
10. Carriage of Personnel on Defence Aircraft
11. Use of Role Equipment
12. Flight Recorder(s) and Locating Equipment.

9.1.1.12 **DAS RoA – Rules of the Air.** The purpose of DASR RoA — Rules of the Air is to assure that the rules stipulated within Defence Aeronautical Information Publication (AIP), as they apply to Defence Aviation, are harmonised with ICAO and national civil practice wherever practical. The intent is that Defence Aviation will have due regard for the safety of navigation of civil aircraft.

9.1.1.13 **DASR SPA – Specific Purpose Approval.** The purpose of DASR SPA — Specific Purpose Approval is to assure that certain Defence Aviation activities are conducted safely. The scope of DASR SPA includes Command Clearances, Low Flying, Flypasts and Flying Displays, Defence Long Range Operations and Night Vision Imaging System operations.

9.1.1.14 **DASR UAS – Uncrewed Aircraft Systems.** The purpose of DASR UAS — Uncrewed Aircraft Systems is to assure the safe operation of UAS. The regulations account for the range of UAS complexity, design pedigree and mass through three different categories: [type] certified category UAS, specific category UAS and open category UAS.

Superseded

9.1.2 Flight Operations Compliance

9.1.2.1 DASA approved aviation organisations implement DASR FLTOPS through a Command approved Flying Management System (FMS) that include:

1. a framework of controls
2. approved orders, instructions and publications
3. the operation of crewed and uncrewed aircraft in approved roles, with correct mission equipment, by qualified and authorised individuals
4. a safety framework that supports compliance with statutory safety obligations and enables risk-based command decisions to deliver capability
5. a system to enable commanders to eliminate and minimise risks SFARP.

9.1.2.2 While the Defence Aviation Safety Framework (DASF) establishes a structure for the management of aviation safety within Defence, responsibility for ensuring the safe operation of aviation systems rests with the chain of command. In the assure/ensure balance, the responsibility to ensure compliance and conformance with the Flight Operations regulations lies largely with the Accountable Manager (AM) of the MAO, ACD Service Provider (ACDSP), or ABM Operator (ABMO). AMs are accountable for:

1. the creation and internal validation of local systems of management that are capable of effectively complying with the requirements of applicable DASR, to the defined scope and level contained in the Military Air Operator Certificate(MAOC), Operational Compliance Statement (OCS), Operations Specification (OpSpec), Air Cargo Service Provider Certificate (ACSPC) and Air Battle Management Operator Certificate (ABMOC)
2. liaison with DASA during development, implementation and application of the system of management, to ensure initial and ongoing compliance.

9.1.2.3 DASA, the MAO, ACDSP and ABMO have overlapping and complementary responsibilities in the Oversight and Enforcement, and Safety Investigation areas of the DASF. However, aviation safety is always a command responsibility. Commanders and managers are therefore accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.

9.1.3 Command Clearances

9.1.3.1 The DASP contains flexibility provisions to assist commanders faced with compelling operational imperatives to make informed decisions regarding regulatory compliance. These provisions become particularly relevant in situations where commanders are expected to operate Defence aircraft at markedly higher levels of risk than normal[2], to achieve non-discretionary activities in support of Australia's national interests. Such decisions must be made at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised SFARFP.

9.1.3.2 In the FLTOPS regulations, Commanders may utilise DASR SPA.10 - Command Clearance (CC), to operate an aviation system outside the system's configuration, role, environment, limitation or condition within a risk based framework. Other flexibility provisions provided in Airworthiness DASR, such as the Military Permit to Fly (MPTF), and those under DASR GR.80 are discussed further

Superseded

in DASPMAN Volume 3, Section 6. However, before a MAO utilises a flexibility provision under the auspices of DASR GR.80, the application must be forwarded to, and approved by, the Authority.

9.1.3.3 The Command Clearance process, available to MAOs under DASR SPA.10, differs from other flexibility provisions, in so far as it is not issued by the Authority, rather a commander at an appropriate level who can make the decision to proceed without further minimising risks commensurate with the clearance being granted. The Command Clearance process should not be used in the first instance to allow an aircraft to fly outside of its approved CRE. It should only be utilised when absolutely necessary to enable an aircraft to fly when the normal methods of ensuring airworthiness cannot be met and it must never be used for administrative convenience.

9.1.3.4 To summarise the process, when aircrew find a fault with their aircraft, a defect should be raised against the aircraft and then cleared, or deferred, by the appropriate maintenance organisation before returning to flight. An exception to this occurs when the defect is allowed under the aircraft's Minimum Equipment List (MEL) of allowable defects. In this case the aircrew may continue with their planned flight, giving due regard to the risks associated with the MEL item. If this process is not suitable or allowed under the DASR, then the MPTF process should be undertaken. Noting that the operational imperative influences the timeline for an MPTF, the captain may seek a Command Clearance through their chain of command.

9.1.3.5 The MAO should only process and approve a Command Clearance when considered with respect to the mission concerned, whether it is urgent or compelling, and the associated elevated level of risk that a Command Clearance would provide. As per all military aviation activities, the Command Clearance system requires appropriate risk consideration and the 7-Step Risk Management process must be followed. The Command Clearance system is there to enable a commander to fly aircraft outside of the approved CRE and as such, the granting of the clearance should not be made in haste or considered lightly.

9.1.3.6 For further information on Military Permits to Fly and Command Clearances see Chapter 5.3 and DASR SPA.10.

9.1.4 Historical context of Flight Operations Related Regulation

9.1.4.1 The Convention on International Civil Aviation (Chicago Convention 1944) set the basis for current civil aviation regulations and founded the International Civil Aviation Organisation (ICAO). Article 3 of the convention states:

> **This Convention shall be applicable only to civil aircraft, and shall not be applicable to state aircraft.**

9.1.4.2 In the Australian context, State Aircraft are defined as 'aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country'[3]. As Defence aircraft are included within this broad category, they are thereby exempt from all requirements contained within the civil aviation regulations.

9.1.4.3 To provide the directed level of aviation capability, Defence aviation platforms need to regularly use both domestic and international civil and military airspace. In doing so, military operators voluntarily adhere to ICAO flight procedures, including 'flying with due regard for the safety of navigation of civil aircraft', because militaries have a natural duty of care to all airspace users. Additionally, the Australian Government's National Aviation Policy White Paper notes that 'Defence, in collaboration with Airservices, is committed to improving civil and military aviation harmonisation,

Superseded

and to enhance better airspace access arrangements'. However, not all ICAO or civil aviation requirements are suited to military operations. Militaries therefore require bespoke regulatory systems to provide for operational capability and an equivalent level of safety. Hence, the tailored application of both civil and military requirements will ensure that Defence aircraft can continue to maximise their operational effectiveness.

9.1.5 MAO-AM Accountabilities and Responsibilities for Force Assigned Aircraft and Crew

9.1.5.1 **DASF and the spectrum of conflict.** The Defence Aviation Safety Framework (DASF) applies throughout the spectrum of conflict. While there are flexibility provisions, Joint Directive 21/2021 - *The Defence Aviation Safety Framework* contains no exceptions to the applicability of the DASF, in totality, during times of conflict.

9.1.5.2 **Accountability.** The DASF aligns accountability with control. Specifically [4]:

> *Commanders and managers are … accountable for ensuring aviation systems under their command or control are designed, constructed, maintained, and operated to approved standards and limitations by competent and authorised personnel acting as members of an approved organisation.*

9.1.5.3 **TECHCON.** ADF Command and Control (C2) doctrine has a suitable means of control for MAO-AMs to exercise their accountability for force assigned aircraft and crew—Technical Advisory Control (TECHCON)[5] [6].

9.1.5.4 **Purpose.** The DASF provides amplification of Defence's safety obligations in the Defence Aviation Environment regarding the application of the:

1. *Work Health and Safety Act 2011*
2. *Work Health and Safety Regulations 2011*
3. various Codes of Practice made pursuant to the principal Act from time to time [7].

9.1.5.5 **Suitability.** The DASF is suitable for application across the spectrum of conflict. The DASF contains 'flexibility provisions to assist commanders faced with compelling operational imperatives.'[8] Notwithstanding, the DASF requires the application of flexibility provisions based on 'informed judgements … at the appropriate command level to ensure that aviation safety risks are eliminated or otherwise minimised so far as is reasonably practicable.'[9] This requirement drives the need for MAO-AMs to exercise TECHCON for force assigned aircraft—as the Joint Force Air Component Commander (JFACC) per se does not hold the knowledge, resources, structures or staff to support the risk management necessary to enact flexibility provisions[10].

9.1.5.6 **Division of duties between operational commanders and TECHCON authorities.** Note, for force assigned aircraft and crews, a court would likely find a MAO-AM (with TECHCON authority), and an operational commander (eg JFACC with operational command), have the same duty under s.16 WHS Act. However, the court would likely consider the capacity to influence and control, and thus discharge the duty by each commander will vary, depending on the factual circumstances of the situation.

9.1.5.7 **WHS Act applicability throughout the spectrum of conflict.** The WHS Act applies throughout the spectrum of conflict. Anecdotally, there is a common misconception that, the WHS

Superseded

Act does not apply during times of conflict. *The CDF declaration* makes clear that the obligations on 'officers, workers and other persons' are largely unchanged between peace, warlike operations and non-warlike operations. Specifically:

1. *the CDF declaration* renders inapplicable to warlike operations or non-warlike operations only the sections of the WHS Act that deal with[11]:
    i. 'Duty to notify of notifiable incidents'
    ii. 'Duty to preserve incident sites'.

9.1.5.8 **MAO-AM accountabilities/responsibilities.** MAO-AM accountabilities and responsibilities are unchanged for force assigned aircraft and crew. The DASP Manual, consistent with Joint Directive 21/2021, places accountabilities and responsibilities on MAO-AM. While there are flexibility provisions, the DASP Manual contains no exceptions to the applicability of the DASP (including the DASR) to MAO-AM regarding force assigned aircraft and crew.

9.1.5.9 **ADF doctrine—C2 provisions to account for the relationship between MAO-AM and force assigned commanders.** ADF doctrine has established C2 provisions to account for the relationship between MAO-AM and force assigned commanders—specifically, TECHCON. TECHCON is 'the provision of specialist and technical advice by designated authorities for the management and operation of forces.[12],

9.1.5.10 By convention (and consistent with ADF-P-0 *Command*[13]) MAO-AMs retain TECHCON for force assigned aircraft and crew. ADF-P-0 Command specifies:

> *Capability managers exercise techcon through advice to the theatre commander for assigned forces ….*
>
> *… For an operational commander, techcon advice will relate to the employment of capabilities so that they are used within their operating parameters ….*

9.1.5.11 C2, as described in ADF-P-0 Command, provides an operational commander the necessary freedom to reject TECHCON advice, as follows:

> *Techcon advice may not be altered but may be rejected in part, or in total, by a commander in consideration of operational factors and within their span of command …*

9.1.5.12 DASF obligations on MAOs, considered against the ability of an operational commander to reject TECHCON advice, infer a number of tasks:

1. **on the MAO-AM[14]:**
    i. to be informed of the operational context in providing any TECHCON advice
    ii. to be available and responsive to operational commanders' requests for TECHCON advice
    iii. to *administer* Command Clearances[15] consistent with the operational commander's decisions regarding TECHCON advice -including any necessary risk management following an operational commander's decision to operate an aircraft outside its 'approved standards and limitations

Superseded

Note the obligation to 'administer' the Command Clearance should not be read as an obligation on the MAO-AM to replicate or endorse the 'decision to proceed' that the operational commander has already made. Rather, the obligation on the MAO-AM to administer the Command Clearance is a recognition that:

- A Command Clearance is the system for managing operation of an aviation system outside its 'approved standards and limitations'—across the spectrum of conflict.
- The MAO is resourced (ie has the staff, expertise and processes to conduct informed, capability specific, risk management) to risk manage the ongoing safe operation of the aircraft—and the JFACC is not.
- Operation of the aircraft following an exceedance of its 'approved standards and limitations' requires risk management—both immediate and ongoing[16].

2. **on the operational commander:**

   i. to provide the MAO-AM sufficient information to understand the operational context

   ii. to weigh the operational imperative against the impact on the capability in considering any TECHCON advice

   iii. to formally document the risk(s) they are accepting by setting aside the MAO-AM-provided TECHCON advice, to meet their operational imperative

   iv. to inform the MAO-AM of any circumstances in which the operational commander has rejected TECHCON advice - to enable the MAO-AM to administer a Command Clearance, and conduct any necessary risk management.

9.1.5.13 **Historical operational experience.** Historical RAAF C2 constructs were not suitable. The Jones-Bostock affair[17] in World War II is an example of a failure of C2 in dealing with the relationship between an operational commander and a TECHCON authority[18]. It illustrates the importance of both a suitable C2 structure, and constructive interpersonal relationships between the TECHCON authority and the operational commander.

9.1.5.14 **Recent operational history.** Recent operational history indicates that doctrinal C2 provisions are suitable. Recent operational experience evidences that:

1. TECHCON provides a suitable C2 arrangement between MAO-AMs and operational commanders
2. there are suitable personnel posted to MAO-AM and senior Air Operations Centre positions to support effective interpersonal relationships.

9.5 Defence Navigation Approvals

Superseded

9.5.1 Introduction

9.5.1.1 The purpose of this chapter is to provide MAOs with guidance when seeking new (or updated) Defence navigation approvals, for Aircraft operations in airspace involving either:

1. Performance Based Navigation (PBN)
2. Reduced Vertical Separation Minima (RVSM)
3. North Atlantic High-Level Airspace (NAT HLA).

9.5.1.2 A MAO must obtain DASA approval to conduct specified Defence navigation operations—DASR SPA.50 refers. MAOs require both:

1. a Military Type Certificate (MTC) (or design approval of changes to the MTC, under DASR Part 21) detailing the necessary equipment to support the Defence navigation approval
2. an updated Military Air Operator Certificate (MAOC) Operations Specification (OpSpec) to include a 'Specific Approval', under DASR SPA.50.

9.5.1.3 Approval to operate in PBN, RVSM or NAT HLA airspace requires demonstration that:

1. the aircraft is technically capable of conducting the requested operations (also known as 'aircraft eligibility')
2. the relevant DASR Part 21J organisation has implemented the continued airworthiness requirements for the required operations
3. the MAO has updated its Flying Management System (FMS) for the requested operations (including, for example, that appropriate training is in place, aircrew competence has been assessed, and associated OIP has been published).

9.5.1.4 The Defence navigation approvals that MAOs can request are the Defence equivalent of the civil navigation requirements defined by[19]:

1. CASA Civil Aviation Order (CAO) 20.91 – (Instructions and Directions for Performance Based Navigation) Instrument 2014
2. the CASA AC 91 series – Performance Based Navigation
3. Civil Aviation Safety Regulation (CASR) Part 91.655 – Reduced Vertical Separation Minima (RVSM) Airspace
4. ICAO NAT Doc 007 - North Atlantic Operations and Airspace Manual.

9.5.1.5 Relevant acronyms, abbreviations and additional reference can be found at Annex A.

9.5.2 Navigation Approvals - Background

9.5.2.1 PBN, RVSM and NAT HLA requirements form part of an internationally recognised framework of area-based navigation capabilities for Aircraft[20], based on the exploitation of:

1. the Global Navigation Satellite System (GNSS)

Superseded

2. on-board Aircraft systems.

9.5.2.2 International Civil Aviation Organisation (ICAO) member nations commenced introducing these navigation requirements in 2001. For Australia, CASA CAO 20.18 mandated the installation of GNSS into all civil Instrument Flight Rules (IFR) Aircraft WEF 4 Feb 16. On that date, the Australian Back-up Navigation Network (BNN) was activated, resulting in approximately 200 (traditional) terrestrial navigation aids being withdrawn from service in Australia (approximately 50%). Therefore, from that date, Australia effectively became GNSS-based PBN and RVSM airspace.

9.5.2.3 While State Aircraft are not bound to the Civil Aviation Act 1988 (Cth), Defence aerospace platforms need to regularly use both domestic and international civil and military airspace for their Defence roles. The tailored application of PBN, RVSM and NAT HLA requirements in Defence Aircraft will ensure that Defence aviation assets can continue to maximise their operational effectiveness. Additionally, the Australian Government's Aviation White Paper—Towards 2050 noted that 'Defence, in collaboration with Air Services, is committed to improving civil and military aviation harmonisation, and to enhance better airspace access arrangements'[21].

9.5.2.4 **PBN operations.** PBN encompasses two lateral navigation specification suites:

1. Required Navigation Performance (RNP)
2. aRea NAVigation (RNAV).

9.5.2.5 The difference is that On-Board Performance Monitoring and Alerting (OBPMA) is required for RNP[22], but not for RNAV.

9.5.2.6 **RVSM operations.** RVSM applies to operations in airspace between Flight Level (FL) 290 and FL 410 inclusive, where a 1000 ft reduced vertical separation minimum is applied.

9.5.2.7 **NAT HLA operations.** NAT HLA operations apply in the North Atlantic, between FL 285 and FL 420 (inclusive), in the airspace linking Europe and North America. This is the busiest oceanic airspace in the world, with limited control and communications coverage. Successful Aircraft separation depends on applying the highest standards of horizontal and vertical navigation performance, and on aircrew operating discipline.

9.5.3 Navigation Approval—Education and Training Development Guidance

9.5.3.1 MAO education and self-training development guidance is available below. The guidance supports MAO development or acceptance of extant training materials that allow the qualification of aircrew for the navigation approvals requested.

1. PBN and RVSM Education and Training Guidance for Military Air Operators
2. Example PBN - RVSM Multiple Choice Aircrew Assessment Quizzes Operators
3. Example PBN - RVSM Quick Reference Handbook Operational Summary

9.5.4 Defence Navigation Approval[23] Process

9.5.4.1 DASR SPA.50 and its complementary DASR Form 1307 Application for Navigation Specification Approval, are based on CASA (ie ICAO) requirements. The form is used to:

Superseded

1. assist MAOs manage their navigation approval requests, by listing required compliance evidence against PBN, RVSM and NAT HLA requirements
2. support complementary MAO risk management processes
3. support MAO and DASA evidence review
4. support a complementary major change to the Type Certification Basis (TCB) where the Aircraft have not previously demonstrated meeting PBN, RVSM and NAT HLA requirements. [24] [25],

9.5.4.2 **Alternative demonstration of compliance.** As of 2023, CASA only specifically provides approvals for PBN RNP-AR operations. Other PBN specifications are automatically considered 'approved' if they are listed in relevant Aircraft OIP (including the AFM)—this is normal practice in civil aviation. However, most non-civil-derivative military platforms do not typically provide statements of compliance with PBN, RVSM and NAT HLA requirements in their OIP. In these military cases, DASA may accept compliance with civil standards through alternative means, by establishing equivalent performance. This involves either, or a combination of[26]:

1. demonstrating that equipment function and performance meets the intent of (but not strict compliance with) the relevant civil standard
2. demonstrating that the use of operational procedures can meet the same function, integrity and OBPMA performance requirements.

9.5.4.3 The most common reasons non-civil derivative military platforms have difficulty achieving compliance with PBN, RVSM and NAT HLA requirements are:

1. the absence of Technical Standard Order (TSO)-approved equipment
2. limited or no evidence of compliance with system functional, integrity or OBPMA performance requirements.

9.5.4.4 Early DASA engagement should be sought for demonstrations via equivalency— to seek assistance in defining the scope of compliance evidence required and likely timelines, and to confirm that a navigation approval is possible before the applicant commits significant resources. Where operational urgency applies, MAOs should consider temporarily applying for less precise[27] navigation approvals—which can be demonstrated more easily—while pursuing more precise navigation approvals in parallel over a less constrained timeframe.

9.5.5 DASR Form 1307 – Application for Navigation Specification Approvals

9.5.5.1 MAOs can request Defence navigational approvals using DASR Form 1307. Each approval is categorised as either 'core', 'non-core', 'supplemental', and 'other', as shown below.

9.5.5.2 **Core approvals.** Core approvals are simpler to process than non-core approvals, and include:

1. RNAV 1
2. RNAV 2
3. RNAV 5
4. RNP 1

Superseded

5. RNP 2

6. RNP APCH, including:

   i. LNAV

   ii. LNAV/VNAV

   iii. LP

   iv. LPV

9.5.5.3 **Non-Core approvals.** Non-core approvals require a more complex compliance process and evidence; and include those specifications that are detailed in other regulatory documents, but are administered in accordance with the nominal PBN approval process (ie RVSM)[28] Non-core approvals include:

1. RNAV 10 (RNP 10)

2. RNP 0.3 (Helicopter)

3. RNP 4

4. RNP AR (RNP AR APCH and RNP AR DP Operations may include One Engine Inoperative (OEI) procedures), including:

   i. RNP AR APCH

   ii. RNP AR DP

5. A-RNP

6. RVSM.

9.5.5.4 **Supplemental approvals.** Supplemental approvals either support another approval, provide an alternate means to support an approval, or provide supplemental navigational capabilities. However, they do not exist in isolation (ie they are complementary to selected core and non-core approvals). Supplemental approvals include:

1. APV / Baro-VNAV

2. Radius to Fix (RF)

3. Fixed Radius Transition (FRT)

4. Time of Arrival Control (TOAC)

5. use of suitable area navigation systems on conventional routes and procedures (both en route and terminal).

9.5.5.5 **Other approvals.** Other approvals are specific or location-based, and include:

1. NAT HLA.

9.5.5.6 A MAO may use the same DASR Form 1307 for multiple approvals. Note, some of the more precise Defence navigation approvals automatically include approval for less precise Defence navigation approvals—this is known as 'nesting'. For example, if DASA awards an approval for RNP 4, DASA will automatically consider approvals for RNP 5 and RNP 10.

Superseded

9.5.6 Applying for Navigation Approvals

9.5.6.1 To gain DASA navigation approval, the applicant must:

1. complete DASR Form 1307
2. submit the required evidence against the approval(s) selected.

9.5.6.2 MAOs should submit applications to DASA at least 90 days prior to the required navigation operations. This allows for the resolution of potential shortfalls against the requested approval(s) before the major change to the TCB and applicant OpSpec.

9.5.6.3 To provide a navigation approval, DASA assesses each approval's compliance evidence against three navigation approval component requirements. The three components are the same for each approval, but the level of detail differs dependent on the approval chosen. The three navigation component requirements are:

1. **Component 1**: Initial Airworthiness and Aircraft eligibility requirements.
2. **Component 2**: Continued Airworthiness requirements.
3. **Component 3**: Flight operations procedures and training requirements.

9.5.6.4 **DASR Form 1307 preparation.** Applicants must use DASR Form 1307 to support review of the evidence requirements of each navigation approval sought. In order of increasing complexity (ie time to process), application evidence options are:

1. The application is based upon an **existing** navigation approval (eg the Aircraft eligibility and continuing airworthiness requirements for the RNP 2 approval can be based on navigation approvals already held for either RNP 1, RNP APCH or RNP AR).
2. The application is based upon a **prior certification** against relevant navigation approval requirements[29].
3. The application is based upon **demonstration** that on-board equipment (and its installation) **meets** the navigation approval's functional, display, alerting and performance requirements[30].
4. The application is based upon **demonstration** that on-board equipment (and its installation), when supported by defined operational controls, **provides functional equivalence** to the approval's functional, display, alerting and performance requirements.
5. The application is based upon a **DASA-agreed alternate approach** to achieving **functional equivalence** to the approval's functional, display, alerting and performance requirements.

9.5.6.5 **Navigation approval evidence.** The following can assist MAOs in collating or generating the evidence required:

1. **For component 1 - Initial Airworthiness and Aircraft eligibility.** DASR Form 1307 uses question sets to guide applicants through the necessary evidence. MAOs may demonstrate Aircraft eligibility through any one of the following:

Superseded

i. the CAA/MAA-approved AFM confirms that the Aircraft **is capable** of undertaking the required operations, with a CRE assessment that either:

– confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

– identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

ii. the CAA/MAA confirms that the Aircraft **has been certified** for the required PBN, RVSM and NAT HLA operations, with a CRE assessment that either:

– confirms that there are no CRE differences that adversely impact the approval in the Defence operational context

– identifies CRE differences that adversely impact the approval in the Defence operational context, together with additional compliance demonstration evidence to address the differences

iii. a technical assessment of the design demonstrates compliance with the prescribed airworthiness requirements for the specified operations.

2. **For Component 2 - Continued Airworthiness.** DASR Form 1307 guides applicants through the evidence necessary to demonstrate that navigation system components will remain compliant with the approved Type Design[31] while in-Service, and that the navigation databases used will remain valid during operations.

3. **For Component 3 - Flight operations procedures and training.**

i. Flight operations procedures. DASR Form 1307 lists operations documentation requirements for each navigation approval, including[32]:

– operating policies to support selected operations under all normal and emergency conditions

– flight crew procedures and checklists for all navigation approvals for the Aircraft Type

– Minimum Equipment Lists (MELs, or their equivalent) for each navigation approval

– planning and management OIP (including for navigation database updates and validation, and mission planning procedures)

– OIP for the reporting and management of navigation database discrepancies and errant Aircraft behaviour observed during approved operations.

ii. **Flight operations training.** DASR Form 1307 lists both generic and specific Flight operations training requirements for each navigation approval, including:

– Flight crew training programs, competency assessments, currency, and training records

– maintenance staff training requirements.

Superseded

9.5.6.6 **Navigation approval evidence shortfall resolution.** Where DASR Form 1307 requirements cannot be met, the form supports DASA consultation and shortfall resolution. The applicant must demonstrate functional equivalence to published requirements. Shortfall resolution involves the:

1. DASA Desk Officer and applicant reviewing shortfalls and discussing possible pathways to demonstrating compliance
2. applicant proposing an appropriate alternative to compliance, that demonstrates functional equivalence, for example:
    i. prior alternative CAA/MAA certifications
    ii. operational or crew-based procedural additions that can demonstrate functional equivalence[33].
3. applicant providing evidence that demonstrates functional equivalence, such as[34]:
    i. flight test programs
    ii. operational human factors and workload assessments
    iii. LMPs
    iv. Aircraft Type Design System Safety Assessments
    v. Risk Management Plans and Mission Risk Profiles to define the additional controls required to be incorporated into OIP.

9.5.6.7 **DASR Form 1307 submission.** To finalise the MAO request, the applicant must submit the form and the corresponding evidence data pack, via a MAO request, to dasa-davnops.operationalreviews@defence.gov.au. The data pack should include a summary of the documents attached and a description of each document's purpose towards navigation approval requirement compliance.

9.5.6.8 When compliance is demonstrated, and the MTCH has updated the aircraft's TCB (through a DASA approved Major change to Type Design), DASA will add the navigation approval(s) to the OpSpec.

9.5.5.9 Table 1 provides MAOs with a checklist of the evidence required in data packs. Note, not all items are required for all navigation approvals. Additionally—in the case of non-core approvals; or where there is a requirement to demonstrate functional equivalence—this checklist is not exhaustive.

Submission Checklist Item
DASR Form 1307 • In original MS Excel Format
Initial Airworthiness and Aircraft Eligibility

Superseded

- Aircraft Airworthiness documents which provide evidence that the Aircraft is Type Certified for the requested operations (eg AFM and supplements, OEM service letters, Type Certificate Compliance Document).
- A description of the relevant Aircraft equipment required for the proposed navigation approvals, including a configuration list of components, and how the system meets applicable requirements.

Continued Airworthiness

- A description of the maintenance program used to ensure the continued Airworthiness of the Aircraft for the equipment required for the navigation approval. This need only address those circumstances where additional specific maintenance is required.
- Applicable Aircraft Maintenance Manuals for the relevant system/s.
- An equipment list for the navigation approvals requested (make, model & part—both hardware & software).
- Applicable extracts from the Minimum Equipment List (Airworthiness items) and applicable instructions that demonstrate identification and management of:
- any unserviceability that affects the conduct of any approved operation
- the systems that GNSS interfaces with, so that in the event of the GNSS being inoperative, the full impact of the failure can be determined
- The rationale for selection of specific MEL items as having an impact on safe operations, and any associated risk assessments.

Airworthiness - Digital Data

- A description of the method used to receive updates to (including the frequency of updates) and to ensure the validity of the airborne navigation database. This should address the validation of data provided externally and internally; and verification procedures for any internal change to the supplied data
    - **Note:** this should include coverage of all digital navigation data (including map and chart data used in Flight during the conduct of procedures, or for ground verification); and

Superseded

	data acquisition, manipulation, and management (to encompass all potential Defence Aircraft operations). • Evidence that the suppliers of the navigation database comply with the minimum integrity requirements of the most stringent approval requested.
Flight Operations Processes • Operational procedures (including normal and emergency) published in OIP. These procedures should include Flight planning, pre-flight, inflight and post-flight. • Procedures should include copies of, or extracts from, OIP covering: o operations manuals o the AFM o checklists o contingency procedures o QRH (or equivalent) o sections of the MEL applicable to the requested operations	
Training and Qualifications • A description of the proposed aircrew, maintenance and other applicable personnel and specialists' training for the requested operations; and associated competencies and currency requirements (including a copy of the LMP and associated artefacts[35]. • Copies of relevant training syllabi, training proficiency examination and assessment templates and currency assessment templates.	

Table 1 – MAO Navigation Approval Submission checklist

Superseded

10. Uncrewed Aircraft Systems

10.1 Introduction

10.1.1 Section 10 establishes provides guidance on the elements necessary to assure aviation safety of Uncrewed Aircraft Systems (UAS), with emphasis on the acquisition, management and operation of UAS.

10.2 Occurrence Reporting

10.2.1 Introduction

10.2.1.1 UAS are subject to aviation safety reporting tailored to their design, function, complexity and the level of skill required for their operation and maintenance based on their category of operation. This section provides the Authority defined minimum reporting requirements as referred to in DASR UAS.60.B.2. The full, open, timely and accurate reporting of UAS aviation safety events and issues allows Defence to respond and apply strategies to prevent future reoccurrence of such events and issues.

10.2.1.2 DASR UAS.60 introduces the terms 'aviation safety event' and 'aviation safety issue' to distinguish between failure of the aviation system while operating and higher-order organisational factors that could lead to a failure of the aviation system while operating.

10.2.1.3 This chapter describes occurrence-reporting requirements for UAS.

Definitions

10.2.1.4 The following definitions are pertinent to this chapter.

1. **Aviation Safety Event**[1]. Any event where an aviation system (including the human element) fails to perform in the expected manner and adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.
2. **Aviation Safety Issue**[2]. A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.
3. **Immediate Reporting.** Events that are Class A or Class B per Table 1-1 of the DASM.
4. **Routine Reporting.** Events that are Class C or Class D per Table 1-1 of the DASM.

Event Classification	Description
Class A	Personal Injury Level (PIL) of Fatal
Class B	PIL[3] of Serious Aircraft Damage Level (ADL) of Substantial Perceived Risk Level (PRL) of High or Very High

Superseded

Class C	PIL of Minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event classifications

10.2.2 Aviation Safety Events and Issues

10.2.2.1 Some UAS may be considered attritable. However, an event or issue should be considered a UAS Safety Event or Issue if the event or issue results in degradation, or failure, of the risk controls upon which the operational authorisation or approval is based. Paragraphs 10.2.3.4 and 10.2.3.5 provide examples.

10.2.2.2 Figure 1 demonstrates a simple flow chart to aid in determining whether an event or issue is a candidate for reporting via the process provided in DASM

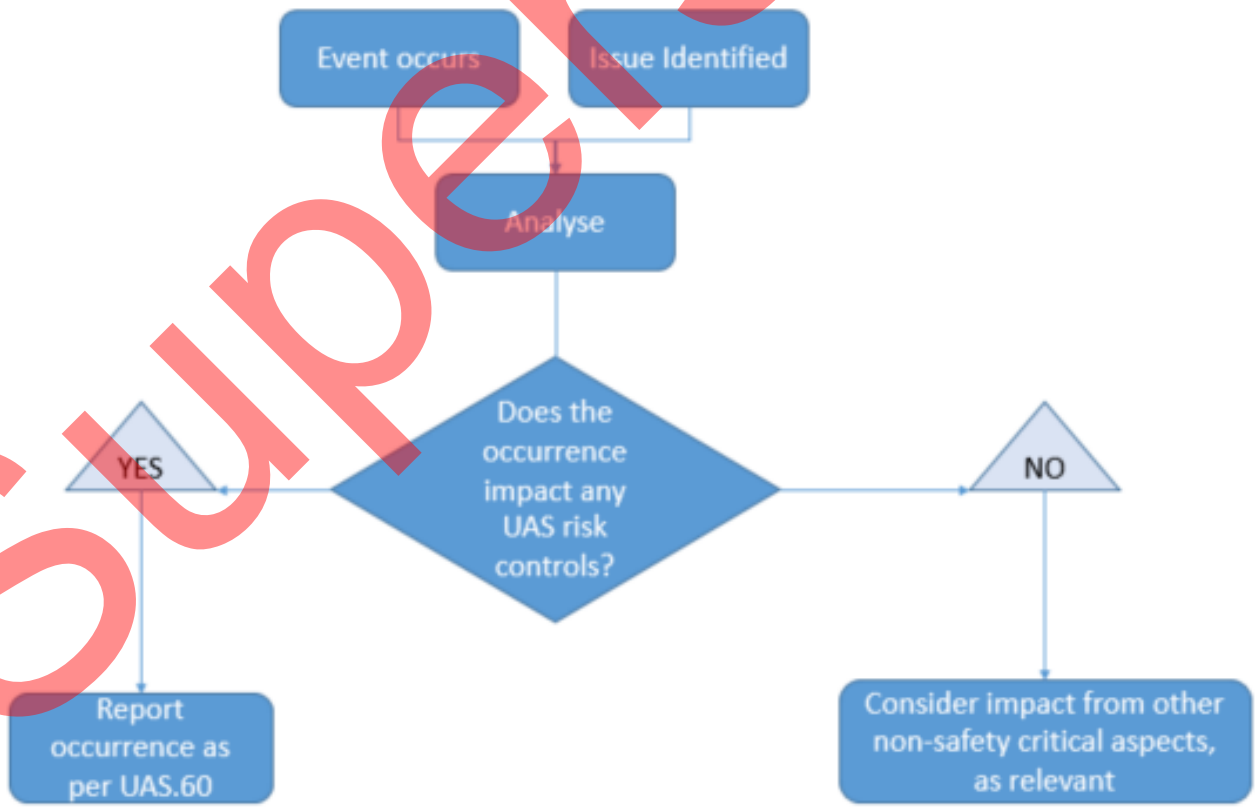


Figure 1: UAS Risk Control Impact

Superseded

UAS Aviation Safety Events

10.2.2.3 An aviation safety event is characterised by an event occurring that involves a safety-related portion of the UAS and/or supporting systems failing in some way. By definition, a 'safety-related' portion of the UAS is any aspect of the UAS that has some control or influence over risk controls or is directly involved in operational use of the UAS— upon which the UAS operational approval was issued. Failure of a safety-related portion of the UAS may directly result in a loss of control of the UAS; or exhibit, or could reasonably have been expected to, exhibit an unintended behaviour.

10.2.2.4 Aviation safety events for UAS are categorised into one or more of the following:

1. **Flight Operations events.** Flight operations events are those aviation safety events that degrade the performance of any of the approved risk controls that occurs during activities associated with flight.

2. **Maintenance events.** Maintenance events are those aviation safety events that degrade the performance of any of the approved risk controls during the conduct of maintenance activities. These safety events, at the time of identification, had not manifested during the conduct of flight operations.

3. **Other support systems events.** Other support systems events that degrade the performance of any of the approved risk controls involving systems or services that functionally and/or physically support the conduct of safe flying operations. These safety events, at the time of identification, had not manifested during the conduct of flight operations.

UAS Aviation Safety Issues

10.2.2.5 An aviation safety issue is an identified shortfall with any organisation supporting the operation of the UAS, which may influence the effectiveness of the organisation, as a risk control for safe operation. Given the organisational focus of safety issues, an aviation safety issue may include identified shortfalls in organisations that:

1. operate the UAS
2. provide maintenance services for the UAS
3. provide engineering services for the UAS
4. provide training services for the UAS
5. provide supporting systems for operation of the UAS; including navigation, communications or meteorological services amongst others.

10.2.3 What to Report

10.2.3.1 DASR Part UAS.60 states that the operator of a UAS must report any identified UAS aviation safety event and that the operator must report UAS aviation safety issues for Certified UAS. Further, it states that the Authority will define minimum reporting requirements for aviation issues through the UASOP approval process for Specific Type A UAS. For Specific Type B and Open Category UAS, there are no mandated reporting requirements. However, command should still consider reporting safety events listed in the examples below.

Superseded

10.2.3.2 The reporting of UAS aviation safety events must be in accordance with the Defence Aviation Safety Manual (DASM), specifically Part 2, Chapter 1. The DASM provides direction on how to report, event classification and expected timings.

Examples of Safety Events and Issues that 'a person authorising or operator of a UAS' must report

10.2.3.3 DASR Part UAS.60 (b).2 indicates the Authority will define the minimum reporting requirements for Specific Type A category UAS in the Authority promulgated UASOP.

10.2.3.4 The following lists capture a non-exhaustive list of UAS Aviation safety events and issues which must be reported via ASR in Sentinel and classified as per DASM Part 2, Section 1.22(b) and 1.23:

1. collision with crewed aircraft, ground or water based personnel, critical infrastructure.
2. near collision with crewed aircraft (including Near Mid-Air Collision (NMAC)[4]), ground or water based personnel, or critical infrastructure
3. breakdown of deconfliction with crewed aircraft,
4. personnel injury sustained directly arising from the conduct of the UAS operation
5. UAS departure from assigned area or operational approved airspace
6. any activation of the flight termination system (FTS) during flight operations (excluding during routine activations of the FTS; for example, during maintenance)
7. technical failures and malfunction within a Remote Pilot Station/Ground Control Station with impact on the flight operation safety.
8. for weaponised UAS, the inadvertent/irregular release or discharge of weapons (where the stores or equipment are configured as part of the UAS).

10.2.3.5 The following safety issues must be reported via an Operational Hazard report:

1. an implemented operational or technical risk control that was found to be less effective than expected
2. an identified discrepancy with RP training (including currency, qualification and ongoing management
3. RP fatigue
4. operations in weather conditions outside of operational limits
5. any identified communications breakdown or failure
6. any organisational failures that have the potential to lead to a UAS aviation safety event.

10.2.3.6 If any of the safety issues listed at item 10.2.3.5 resulted in, or could have reasonably endangered the safety of crewed aircraft, ground or water based personnel, or critical infrastructure, 'a person authorising or operator of a UAS' must report such as a UAS safety event.

Superseded

10.3. Documenting Operating Role and Environment

(Reserved)

10.4. Specific Type A Compliance Requirements

(Reserved)

10.5. Key Personnel

(Reserved)

10.6. Local Registration

(Reserved)

10.7. NDR

(Reserved)

10.8. Weaponisation

(Reserved)

Superseded

10.2. Occurrence Reporting

10.1 Introduction

10.1.1 Section 10 establishes provides guidance on the elements necessary to assure aviation safety of Uncrewed Aircraft Systems (UAS), with emphasis on the acquisition, management and operation of UAS.

10.2 Occurrence Reporting

10.2.1 Introduction

10.2.1.1 UAS are subject to aviation safety reporting tailored to their design, function, complexity and the level of skill required for their operation and maintenance based on their category of operation. This section provides the Authority defined minimum reporting requirements as referred to in DASR UAS.60.B.2. The full, open, timely and accurate reporting of UAS aviation safety events and issues allows Defence to respond and apply strategies to prevent future reoccurrence of such events and issues.

10.2.1.2 DASR UAS.60 introduces the terms 'aviation safety event' and 'aviation safety issue' to distinguish between failure of the aviation system while operating and higher-order organisational factors that could lead to a failure of the aviation system while operating.

10.2.1.3 This chapter describes occurrence-reporting requirements for UAS.

Definitions

10.2.1.4 The following definitions are pertinent to this chapter.

1. **Aviation Safety Event**[1]. Any event where an aviation system (including the human element) fails to perform in the expected manner and adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.
2. **Aviation Safety Issue**[2]. A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.
3. **Immediate Reporting.** Events that are Class A or Class B per Table 1-1 of the DASM.
4. **Routine Reporting.** Events that are Class C or Class D per Table 1-1 of the DASM.

Event Classification	Description
Class A	Personal Injury Level (PIL) of Fatal
Class B	PIL[3] of Serious Aircraft Damage Level (ADL) of Substantial

Superseded

	Perceived Risk Level (PRL) of High or Very High
Class C	PIL of Minor ADL of Moderate PRL of Medium
Class D	PIL of No Injury ADL of No Damage/Minor Damage PRL of Low or Very Low

Table 1: Event classifications

10.2.2 Aviation Safety Events and Issues

10.2.2.1 Some UAS may be considered attritable. However, an event or issue should be considered a UAS Safety Event or Issue if the event or issue results in degradation, or failure, of the risk controls upon which the operational authorisation or approval is based. Paragraphs 10.2.3.4 and 10.2.3.5 provide examples.

10.2.2.2 Figure 1 demonstrates a simple flow chart to aid in determining whether an event or issue is a candidate for reporting via the process provided in DASM

Superseded

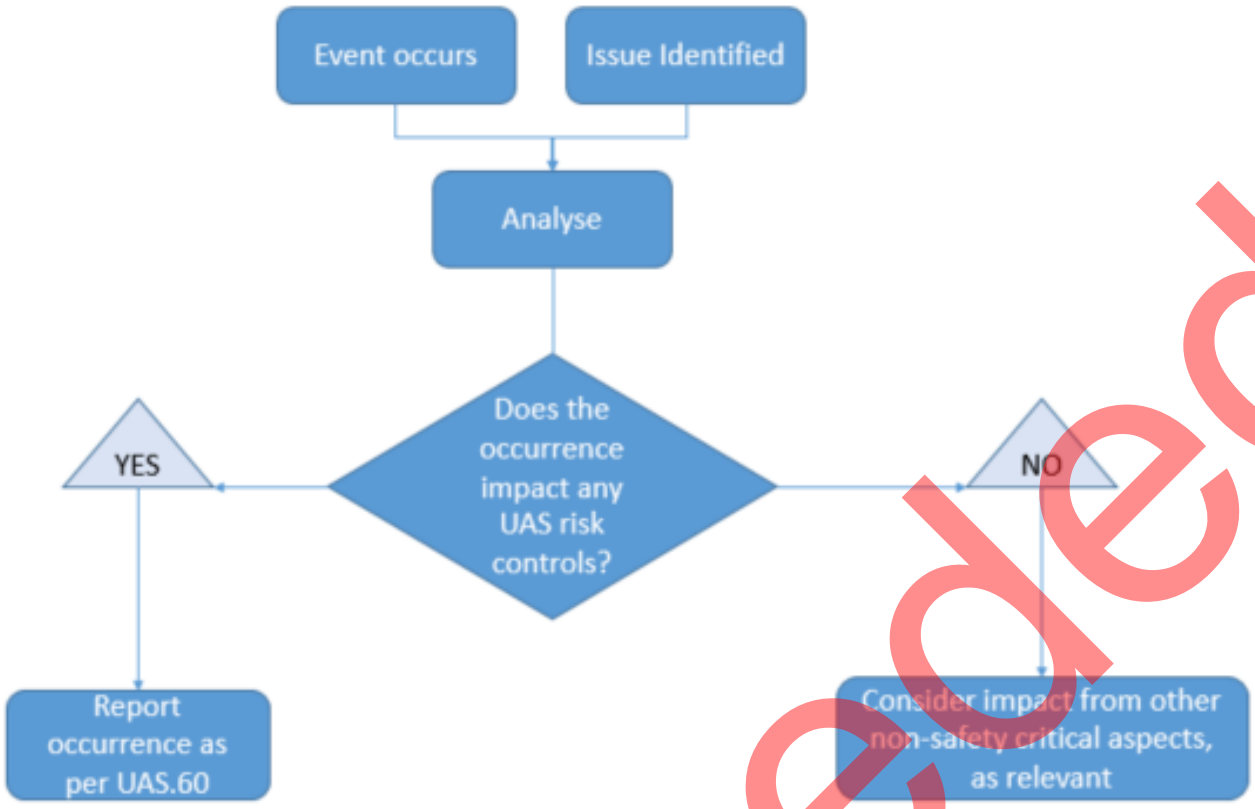


Figure 1: UAS Risk Control Impact

UAS Aviation Safety Events

10.2.2.3 An aviation safety event is characterised by an event occurring that involves a safety-related portion of the UAS and/or supporting systems failing in some way. By definition, a 'safety-related' portion of the UAS is any aspect of the UAS that has some control or influence over risk controls or is directly involved in operational use of the UAS— upon which the UAS operational approval was issued. Failure of a safety-related portion of the UAS may directly result in a loss of control of the UAS; or exhibit, or could reasonably have been expected to, exhibit an unintended behaviour.

10.2.2.4 Aviation safety events for UAS are categorised into one or more of the following:

1. **Flight Operations events.** Flight operations events are those aviation safety events that degrade the performance of any of the approved risk controls that occurs during activities associated with flight.

2. **Maintenance events.** Maintenance events are those aviation safety events that degrade the performance of any of the approved risk controls during the conduct of maintenance activities. These safety events, at the time of identification, had not manifested during the conduct of flight operations.

3. **Other support systems events.** Other support systems events that degrade the performance of any of the approved risk controls involving systems or services that functionally and/or physically support the conduct of safe flying operations. These safety events, at the time of identification, had not manifested during the conduct of flight operations.

Superseded

UAS Aviation Safety Issues

10.2.2.5 An aviation safety issue is an identified shortfall with any organisation supporting the operation of the UAS, which may influence the effectiveness of the organisation, as a risk control for safe operation. Given the organisational focus of safety issues, an aviation safety issue may include identified shortfalls in organisations that:

1. operate the UAS
2. provide maintenance services for the UAS
3. provide engineering services for the UAS
4. provide training services for the UAS
5. provide supporting systems for operation of the UAS; including navigation, communications or meteorological services amongst others.

10.2.3 What to Report

10.2.3.1 DASR Part UAS.60 states that the operator of a UAS must report any identified UAS aviation safety event and that the operator must report UAS aviation safety issues for Certified UAS. Further, it states that the Authority will define minimum reporting requirements for aviation issues through the UASOP approval process for Specific Type A UAS. For Specific Type B and Open Category UAS, there are no mandated reporting requirements. However, command should still consider reporting safety events listed in the examples below.

10.2.3.2 The reporting of UAS aviation safety events must be in accordance with the Defence Aviation Safety Manual (DASM), specifically Part 2, Chapter 1. The DASM provides direction on how to report, event classification and expected timings.

Examples of Safety Events and Issues that 'a person authorising or operator of a UAS' must report

10.2.3.3 DASR Part UAS.60 (b).2 indicates the Authority will define the minimum reporting requirements for Specific Type A category UAS in the Authority promulgated UASOP.

10.2.3.4 The following lists capture a non-exhaustive list of UAS Aviation safety events and issues which must be reported via ASR in Sentinel and classified as per DASM Part 2, Section 1.22(b) and 1.23:

1. collision with crewed aircraft, ground or water based personnel, critical infrastructure.
2. near collision with crewed aircraft (including Near Mid-Air Collision (NMAC)[4]), ground or water based personnel, or critical infrastructure
3. breakdown of deconfliction with crewed aircraft,
4. personnel injury sustained directly arising from the conduct of the UAS operation
5. UAS departure from assigned area or operational approved airspace
6. any activation of the flight termination system (FTS) during flight operations (excluding during routine activations of the FTS; for example, during maintenance)

Superseded

7. technical failures and malfunction within a Remote Pilot Station/Ground Control Station with impact on the flight operation safety.

8. for weaponised UAS, the inadvertent/irregular release or discharge of weapons (where the stores or equipment are configured as part of the UAS).

10.2.3.5 The following safety issues must be reported via an Operational Hazard report:

1. an implemented operational or technical risk control that was found to be less effective than expected

2. an identified discrepancy with RP training (including currency, qualification and ongoing management

3. RP fatigue

4. operations in weather conditions outside of operational limits

5. any identified communications breakdown or failure

6. any organisational failures that have the potential to lead to a UAS aviation safety event.

10.2.3.6 If any of the safety issues listed at item 10.2.3.5 resulted in, or could have reasonably endangered the safety of crewed aircraft, ground or water based personnel, or critical infrastructure, 'a person authorising or operator of a UAS' must report such as a UAS safety event.

10.3. Documenting Operating Role and Environment

(Reserved)

10.4. Specific Type A Compliance Requirements

(Reserved)

10.5. Key Personnel

(Reserved)

10.6. Local Registration

(Reserved)

10.7. NDR

(Reserved)

Superseded

(Reserved)

Superseded

11. Aerodromes

11.1 Aerodrome Regulation

11.1.1 DASR 139 Aerodromes Overview

11.1.1.1 To support safe aircraft operations at Defence aerodromes, the Defence Aviation Safety Authority (DASA) released the Defence Aviation Safety Regulations 139 – Aerodromes (DASR 139). These regulations require all Defence aerodromes to be classified as 'certified' or 'non-certified'. Where DASR 139 refers to the term 'aerodrome', it should be read to include:

1. airport
2. airfield
3. airbase
4. heliport (land based or shipborne).

11.1.1.2 DASR 139 deals with, *inter alia*, two key approvals:

1. Aerodrome Operator (AD OPR) Organisation approvals
2. Defence Certified Aerodrome approvals.

Classification of aerodromes (Certified/Non-Certified)

11.1.1.3 Defence aerodromes may be certified or non-certified. DASA's decision[1] to classify an aerodrome as a Certified Aerodrome is based on meeting one of the following four criteria[2]:

1. there is a terminal instrument flight procedure[3] (not including Airborne Radar Approach (ARA) per se) for the aerodrome[4]
2. there are regular civil commercial passenger operations at the aerodrome
3. there are frequent aircraft operations at the aerodrome[5]
4. Defence flight operations at the aerodrome are often inherently hazardous, beyond the scope of normal civilian operations—and the provision of a well-designed/ maintained aerodrome is a key safety risk control[6].

11.1.1.4 DASA developed these criteria through benchmarking certification criteria and information from the Civil Aviation Safety Authority, the European Union Aviation Safety Agency and the International Civil Aviation Organisation tailored to the context of Defence aviation operations at Defence aerodromes.

Guidance for Non-Certified Defence Aerodromes

11.1.1.5 Non-certified Defence aerodromes are not subject to DASR 139 requirements. However, a commander's obligations under the WHS Act 2011 still apply. The underlying principles in DASR 139 (and the Defence Aviation Safety Design Requirements Manual (DASDRM) Section 6 standards) provide guidance to the responsible commander[7] for operation of a non-certified aerodrome—in

Superseded

ensuring that the aerodrome equipment, systems and installations support safe aviation operations. There could also be more than one responsible commander[8] at any one time[9], depending on the operation of the aerodrome.

11.1.1.6 If the design or operating intent change throughout the life of a non-certified aerodrome, certification and assurance may be warranted under DASR 139. Those responsible for operating/ managing the aerodrome should contact DASA for guidance if such changes (eg major design changes) occur.

Certified Aerodromes

11.1.1.7 The AD OPR organisation must submit an application to DASA for an Aerodrome Certificate for those aerodromes requiring certification. The Aerodrome Certification process is in Chapter 5.3 Annex V.

11.1.1.8 On determining that the aerodrome and the aerodrome operations meet all DASR 139 requirements, DASA will issue an amendment to the AD OPR Certificate (AD OPRC) Operations Specification (OpSpec) — authorising the approved AD OPR to operate the aerodrome as a DASR 139 Certified Aerodrome. Chapter 5.3 Annex B details the process for updating the OpSpec.

Aerodrome Operator management systems and documentation

Aerodrome Operator organisational structure

11.1.1.9 An AD OPR is an organisation consisting of operational, maintenance and engineering personnel that:

1. forms part of a Force Element Group or equivalent force structure
2. must achieve the roles and responsibilities of DASR 139. (See Chapter 5.3 Annex B for the AD OPR approval process).

11.1.1.10 Due to the complexities of the organisations, facilities and locations associated with individual aerodromes, clear understanding and documentation of an organisational structure will enhance command's ability to achieve safe flight operations. The Services outsource to other Defence Groups, such as Security and Estate Group, Chief Information Officer Group and Capability Acquisition and Sustainment Group, to deliver aerodrome capability. Contractors are utilised extensively to complete tasks. This occurs at the AD OPR and base level.

1.1.1.11 DASR AMC 139.30.2.g requires the AD OPR to include an 'outline of relevant aerodrome management arrangements' in the AD OPR Compliance Statement. This outline should include aerodrome management arrangements with subordinates, subordinate organisations (eg wings/ units), supporting Defence groups, contractors and other organisations that support DASR 139 compliance. The AD OPR should include details of formal agreements which such organisations or individuals in the Compliance Statement.

11.1.1.12 At the base level, DASR AMC 139.50.2 requires the Aerodrome Manual to include the aerodrome's organisation and management structure, including agreements with civil operators. The description of organisation and management arrangements should include relationships with organisations that support the AD OPR's local team to achieve and maintain DASR 139 compliance. This should include any subcontractors from supporting organisations and details of formal agreements.

Superseded

Personnel competency

11.1.1.13 As the safe operation and maintenance of an aerodrome requires a large number of personnel working in a range of fields and disciplines, ensuring their competence is essential. To ensure AD OPR personnel meet the requirements of DASR AMC 139.100 (to obtain, complete and maintain effective competency), AD OPRs should define the training, qualifications and authorisations required for personnel undertaking a role in support of aerodrome operation. These may include training and assessment programs pertaining to airside awareness, aerodrome rescue and firefighting, operations, engineering and maintenance.

Aerodrome management systems and documentation

Aerodrome documentation

11.1.1.14 DASA requires evidence demonstrating suitable systems for the maintenance and operation of each aerodrome are in place. These artefacts are part of the Aerodrome Manual requirements. There are a number of systems, including the Quality Management System and Safety Management System, which the AD OPR may implement across the organisation or have aerodromes establish individually. Regardless, when applying to add a Certified Aerodrome to an AD OPRC OpSpec, the AD OPR must include details of the implemented organisational systems in the Aerodrome Manual.

11.1.1.15 DASA reviews these documents on receipt of an application for addition of a DASR 139 Certified Aerodrome to an AD OPRC OpSpec. These documents form part of the evidence supporting compliance with the regulation.

Aerodrome maintenance program

11.1.1.16 Failure to follow the aerodrome maintenance program may lead to DASA making a finding against the AD OPR approval, and can affect certification. Examples of arrangements (systems and procedures) used to enact the aerodrome maintenance program plan include:

1. repainting of markings – periodic repaint
2. electrical system works – continuity testing
3. periodic friction testing
4. obstacle surveys
5. aerodrome technical inspections
6. aerodrome serviceability inspections.

11.1.1.17 There is no requirement to submit an aerodrome maintenance program to DASA. However, the program should be available for DASA on request and may be reviewed as part of initial approval and oversight activities.

11.2 Aerodrome Certification

11.2.1 Aerodrome Certificate

Certification process and programs

Superseded

11.2.1.1 The Aerodrome Certificate is a certificate granted to an Aerodrome Operator (AD OPR) by DASA certifying that the aerodrome meets the technical specifications outlined in its certification basis. The Aerodrome Certificate addresses the requirements of DASR 139.80.

11.2.1.2 To achieve aerodrome certification, the following five primary activities must be undertaken:

1. define a DASA-agreed CB for the aerodrome
2. demonstrate that the aerodrome design and construction complies with the agreed CB
3. declare that the aerodrome design and construction complies with the agreed CB
4. implement arrangements to support continued aerodrome compliance with the CB
5. provide design information to support continuing safe operation of the aerodrome.

11.2.1.3 Each of these mandated activities (and other supporting aspects) form the basis of the certification process.

11.2.1.4 The following figure shows the aerodrome certification activities:

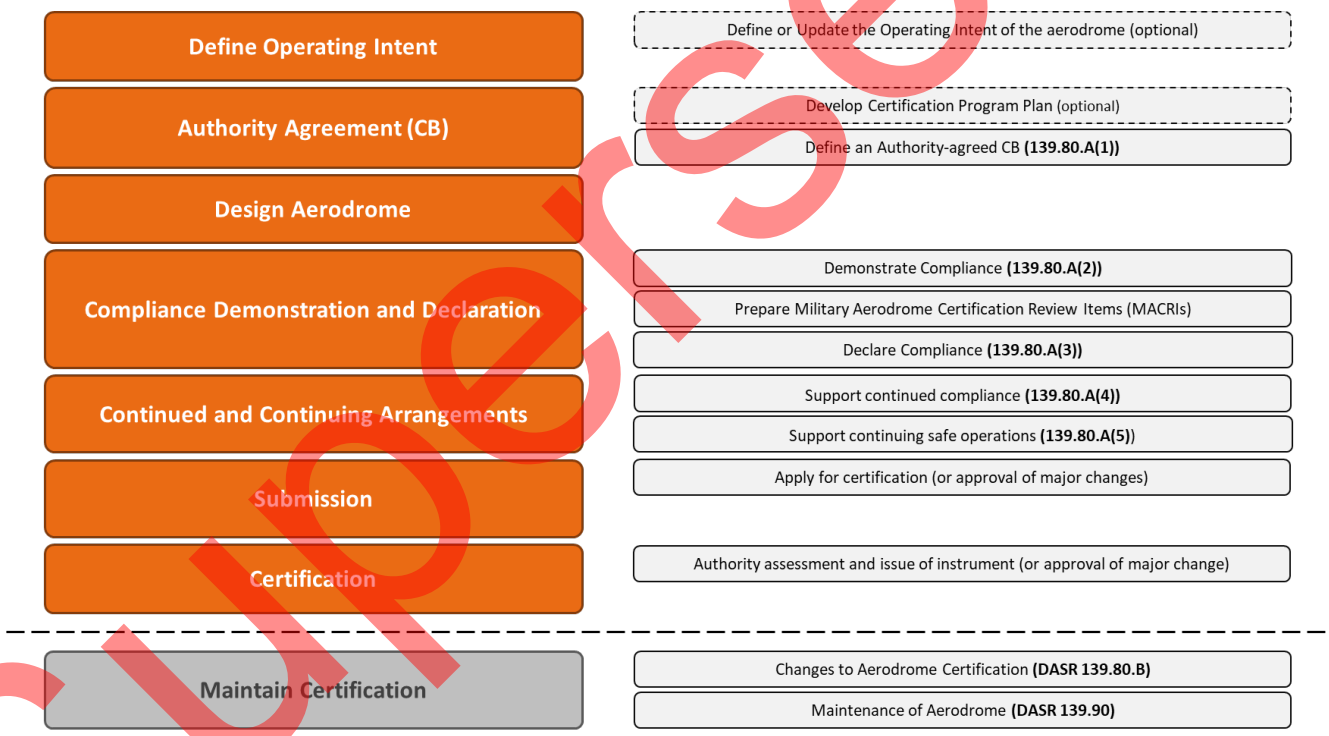


Figure 1: Aerodrome certification activities diagram

11.2.1.5 The certification program of work captures the operating intent; establishes the design requirements; designs, constructs and demonstrates compliance to the design requirements; establishes arrangements for continued compliance to the certification basis; and establishes arrangements for continuing safe operations at the aerodrome. The plan documenting this program of work is the Certification Program Plan (CPP), which will help align and coordinate all stakeholders involved in the aerodromes certification activity.

Develop a Certification Program

Superseded

11.2.1.6 Obtaining an Aerodrome Certificate requires the completion of the Certification Program (CP) conforming to DASR 139 requirements. A CPP is not mandated by the regulations, but a project should consider developing a CPP. A CPP will aid the process by gaining agreement with DASA, of the proposed approach to achieve certification. The plan then informs and aligns all stakeholders in an effort to increase efficiency in a complex process. Acquisition projects and complex changes should produce a detailed CP while a simplified CP may be acceptable for less complex changes.

11.2.1.7 DASA will review and endorse a CPP if found suitable to support the future application for a certificate. DASA will be available to support the applicant throughout the certification process and provide guidance and feedback where needed. This will reduce the likelihood of an application being incomplete at the time of submission.

11.2.1.8 The applicant should submit a mature draft of the document to the DASA aerodromes mailbox for comments and feedback. The Aerodrome and Heliport section in DASA and the applicant will discuss the content of the CPP until both parties are satisfied that the certification activities are appropriate and sufficiently detailed for the stage of the project. An applicant organisation may submit a signed CPP to DASA for endorsement.

Certification Basis

11.2.1.9 An Aerodrome's CB is an agreed set of requirements needed to support safe flight operations at the aerodrome. To receive an Aerodrome Certificate, the aerodrome must be compliant with the CB. The basis of a Defence Aerodrome CB is a set of standards, which are recognised, credible and defensible. The Authority identifies these recognised standards within Section 6 of the Defence Aviation Safety Design Requirements Manual (DASDRM) (For details on the DASDRM, refer to Annex A). The applicable requirements extracted from the DASDRM are tailored to take into account the operating intent of the aerodrome. The CB may also include any special detailed technical requirements that address unique issues beyond the scope of the design requirements contained in the DASDRM. A CB thus comprises of:

1. applicable design requirements prescribed in the relevant chapter of Section 6 of the DASDRM
2. any tailoring to the above design requirements to meet an aerodrome's operating intent
3. any additional technical requirements that are needed to address unique issues beyond the scope of design requirements in Section 6 of the DASDRM.

11.2.1.10 DASA has developed templates to support the creation of Certification Basis for land-based aerodromes intended primarily for use by fixed wing aircraft; land-based heliports, and shipborne heliports. These templates contain all the design requirements from Chapter 2, Chapter 3, and Chapter 4 of Section 6 of the DASDRM respectively that the applicant can use to develop a CB and track certification activities.

11.2.1.11 For shipborne heliports the CB will normally be established as part of the Projects Material Seaworthiness Requirement Set (MSRS) as defined in the N-Library. Notwithstanding the Seaworthiness system requirements, the subset of a Projects MSRS related to aerodrome certification (those requirements based on the DASDRM design requirements) – the shipborne heliport CB requires DASA agreement.

Operating intent informing the Certification Basis

Superseded

11.2.1.12 As the operations taking place at each Defence aerodrome are unique, not all the requirements contained in the DASDRM are applicable to every aerodrome. To help identify those requirements that are relevant and those requirements that are not, there is a clear need for an understanding of the operations taking place at an aerodrome. The achievement of the design, construction and certification of an aerodrome is unlikely without the understanding of the operations at the aerodrome. As such, a documented operating intent is critical to establishing a CB and gaining certification. A documented operating intent is also likely to help inform development of compliance demonstration programs and support on-going safe flight operations at the aerodrome.

11.2.1.13 A high-level description of the facilities and operations at an aerodrome are often captured in a Statement of Operating Intent (SOI) (or similar documents – similar documents may include the Statement of Operating Intent and Usage (SOIU) and the Operating and Support Intent (OSI)) for an aerodrome). While DASA does not mandate the development or update of a specific document for Defence aerodromes (such as a SOIU), it is important to have this information documented before commencing the development of the CB. The basis for tailoring DASDRM requirements is a documented operating intent, justifying the removal of different requirements that are not relevant to the aerodrome, or identifying and adding special technical requirements. The Certification Basis Templates provide the functionality to capture the justification of tailoring of the design requirement set.

Certification Basis tailoring

11.2.1.14 The provisional CB represents the 'target' aerodrome design and construction requirements (note – use of the term 'provisional CB' is simply because there may be additional tailoring identified as the design and production process develops). During design and construction of an aerodrome, it is unlikely that there will be compliance with all the design requirements of a provisional CB. These shortfalls require management to ensure elimination of any risks posed by the non-compliances or that they are otherwise minimised SFARP. Addressing these shortfalls will result in changes to the CB. These changes need to be done through the Military Aerodrome Certification Review Item (MACRI) where either alternate requirements are used which have been demonstrated to achieve an equivalent level of safety or limitations/treatments are applied to the CB requirement to eliminate or otherwise minimise risks SFARP to safe flight operations.

11.2.1.15 Tailoring of the CB must be based upon:

1. a safety argument that demonstrates an equivalent level of safety can be achieved through a tailored design requirement, or
2. detailed Safety Risk Management (SRM) (normally in the form of an Aerodrome Issue Paper (ADIP)) if compliance with the design requirement would adversely affect Defence capability, and risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means.

11.2.1.16 The Certification Basis Templates can be used to identify the tailoring that has occurred and reference all the supporting documentation.

11.2.1.17 DASA approves aerodrome CBs and any changes to an extant CB. Approval of the provisional CB for an aerodrome can be through a formal standalone approval of the CB or combined with approval of the CPP.

11.2.1.18 Approval for updates to a CB can be through a formal standalone process similar to that undertaken for a provisional CB or combined with the CPP for the change. For a change, the applicant only needs to identify the affected CB requirements for approval.

Superseded

11.2.1.19 DASA must approve all tailoring of the CB prior to the application of the aerodrome certificate.

Demonstrate compliance

11.2.1.20 Once the CB has been established, and the design and construction of an aerodrome commenced or completed, the applicant needs to demonstrate, through the production of evidence, that the design and construction of the aerodrome meets the agreed CB.

11.2.1.21 Compliance demonstration evidence must be available for inspection by the DASA (on a non-exhaustive basis) in order to provide independent assurance that the evidence is suitable, and that the evidence demonstrates compliance to the agreed CB requirements.

11.2.1.22 Compliance demonstration evidence is contained in compliance documents. It may consist of design data, test plans and reports, analyses, drawings, processes, material specifications, operating limitations, aerodrome manual and supplements, and maintenance program and supplements amongst others. The applicant is responsible for demonstrating compliance by the agreed means during the CP, and making the evidence available to DASA for inspection.

11.2.1.23 Generation of evidence is solely the responsibility of the applicant. All compliance documents must be independently checked by the applicant and signed as complete and accurate regardless of DASA's inspection requirements. The applicant shall compile a list of evidence produced to demonstrate compliance against each line item of the CB; and provide a formal declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The evidence can be captured in the DASA CB template tool or another applicant specified means. A 'User Guide – Certification Basis Template Guidance' provides information on how to use the CB template tool to capture the compliance demonstration evidence which can be obtained from DASA.

11.2.1.24 The process for the RANs Materiel Assurance, described in the N-Library, will normally be used to plan and complete compliance demonstration for shipborne heliports. However, the requirement to make all evidence that demonstrates compliance to the agreed CB available to DASA is still applicable.

11.2.1.25 Throughout the CP, DASA will inspect selected compliance evidence to the extent necessary to assure the safety of the design and construction of the aerodrome. DASA will review, on a non-exhaustive basis, any compliance evidence used to support the declaration of compliance to provide the independent assurance necessary to support the granting of an Aerodrome Certificate.

Management of non-compliances

11.2.1.26 During compliance demonstration activities and over the life of the aerodrome, shortfalls / non-compliances against the aerodrome CB design requirements may be identified. Non-compliances against the CB should be examined for impact to certification and safety of flight operations.

11.2.1.27 Where it is not reasonably practicable to change the aerodrome design OR where evidence cannot be generated to demonstrate compliance with a design requirement in the CB, the applicant should pursue approval for tailoring of the CB. Central to this tailoring process are the MACRI and the ADIP.

11.2.1.28 A MACRI is a document, which captures an applicant's proposal to modify an aerodromes CB design requirement, and DASA approval of the modification. There are two types of MACRI, an Equivalent Safety Finding (ESF) MACRI and an Exception MACRI. Development of a MACRI should only

Superseded

proceed if it is not reasonably practicable to eliminate the risks through engineering / design changes. For details on the MACRI process, refer to Factsheet – Military Aerodrome Certification Review Items.

11.2.1.29 ADIP are used when an applicant identifies an enduring design deficiency, which requires a risk treatment decision by Command. An ADIP usually underpins an Exception MACRI but may also be used to support an ESF MACRI. A safety argument should normally be used to support an ESF MACRI. However, if the Safety argument is complex and the controls contentious, an ADIP can be used to capture the argument and controls and gain operator agreement. Factsheet *Aerodrome Issue Paper* describes what constitutes an ADIP, and illustrates the process for raising and processing an ADIP, including the roles of the applicant / person evaluating the Non-compliance, and the roles of the DASA and Command.

11.2.1.30 By Approving an ADIP, DASA is providing assurance that the risk management is following the 7-Step SRM process and is defensible. By approving a MACRI, DASA approves the tailoring of the CB. Once approved by DASA, any tailoring of the CB requirements should be captured in the CB Template, or an applicant specified template, with the corresponding MACRI information. For details on how to use the template to capture this information, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.31 DASA reviews all MACRIs and supporting ADIP and will provide approval if the DASA is assured a credible and defensible safety argument or application of the SRM has been completed. The approval provides agreement to the change in the CB requirement.

Declare compliance

11.2.1.32 When applying for certification of an Aerodrome under DASR 139.80, the applicant must make a declaration of compliance. The purpose of the declaration is to ensure the applicant organisation has considered and confirmed that compliance has been demonstrated to all CB requirements and no aspect is unsafe for use as intended. The applicant must identify a suitable person to make the declaration – usually the person responsible for design/manufacture/inspection of the aerodrome.

11.2.1.33 The person chosen to declare compliance must be a competent, qualified and authorised individual. Whilst DASA does not mandate whom is such a person, the applicant is to propose and justify why the nominated person is suitable. DASA does however have the expectation that the person making the declaration would be a senior engineer of an accountable organisation. This person does not have to be a part of the applicant's organisation; though this should be clearly identified in the Certification Program Plan.

11.2.1.34 When all Military Aerodrome Certification Review Items (MACRIs) have been approved and all compliance demonstration evidence has been developed and approved, the applicant is in a position to make a declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The declaration can be made as part of the application for an Aerodrome Certificate, for which a DASA form has been developed (see Forms area below), or via another means (which could be formally agreed in the CPP).

11.2.1.35 The declaration of compliance is made by the applicant organisation, with the applicant declaring that:

1. the Design meets the Certification Basis
2. the Construction meets the Design
3. all non-compliance issues are addressed through DASA approved MACRIs.

Superseded

11.2.1.36 Declaration of compliance can only be completed:

1. after DASA approval of all MACRIs
2. and after compliance has been shown against ALL requirements in the CB

11.2.1.37 An applicant can make their Declaration in the Aerodrome Certification application form (Application for Aerodrome Certificate). When submitting an application for an Aerodrome Certificate, the submission of the declaration of compliance must be accompanied with:

1. the Certification Check List (CCL) - to be made available and can be attached as an Annex to the application form
2. DASA must be given access to all compliance evidence referenced in the CCL
3. evidence of arrangements to support continued compliance with the CB
4. evidence of arrangements to manage design information for continuing safe operations.

11.2.1.38 Prior to completion of the declaration of compliance and all supporting documentation, the Applicant may choose to invite DASA to review completed compliance demonstration evidence and/or supporting documents.

11.2.1.39 The Applicant should be pro-active and engage with DASA as early as possible in the certification process to plan for early reviews of completed documents.

11.2.1.40 DASA will not review early draft versions, only mature drafts of documents.

11.2.1.41 The applicant can use the CB template, developed by the DASA, to keep track of compliance demonstration activities against each line item of the CB, including MACRI submissions and approvals. Evidence of arrangements to support continued compliance with the CB, and evidence of arrangements to manage design information for continuing safe operations can be referenced in this template. Once completed, the CCL sheet from the template can be attached as an annex to the Application form. While the use of this CB template is not mandatory, the information captured within a completed CCL needs to be made available to the DASA in an easily discernible manner. For details on how to use the CB template, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.42 DASA will review the compliance declaration, including the personnel competency of the person making the declaration, as part of the aerodrome certification.

11.2.1.43 DASA may choose to inspect some, most or all of the compliance demonstration evidence provided by the applicant. The applicant has the responsibility to ensure all compliance evidence is available to DASA.

Establishing arrangements for continued compliance

11.2.1.44 Continued (Design) aerodrome compliance encompasses all tasks, to be carried-out to verify that the conditions under which an aerodrome certificate has been granted, continue to be fulfilled throughout its period of validity. Arrangements that enable continued aerodrome compliance are an integral part of aerodrome certification. DASA must be assured that the aerodrome will continue to comply with the aerodrome certification basis and that the safe design of the aerodrome will be retained through the service life of the Aerodrome to issue and maintain certification.

Superseded

11.2.1.45 Aerodromes can have a long service life, and changes are often made to the aerodrome design, construction and operation during that service life. Furthermore, the original design and/or construction of the aerodrome may include latent defects, not evident at the time of original certification. Arrangements to support continued aerodrome compliance with the aerodrome certification basis is essential. The following systems and procedures are a minimum to be implemented to support continued compliance:

1. A system to retain, and retention of all relevant design information, drawings and test reports; including inspection records for the aerodrome.

2. A system and procedures to capture and manage the configuration of the aerodrome design.

3. A system and processes to collect, investigate and analyse reports of and information related to failures, malfunctions, defects or other occurrences which might adversely affect safe operation of the aerodrome, and to implement corrective action if warranted.

11.2.1.46 For initial certification, the applicant is to establish and provide evidence of these systems and procedures. These arrangements will then be implemented and monitored by the AD OPR in service.

11.2.1.47 DASA will review, on a non-exhaustive basis, the information and procedures provided for continued aerodrome compliance arrangements amongst other things before issuing an aerodrome certificate. Furthermore, DASA may review any non-compliance, occurrences or design defects communicated by the applicant and/or the AD OPR for the potential to affect the certification status and whether the actions taken to maintain support to safe flight operations are credible and defensible.

11.2.1.48 A record of the documents and information that is provided for supporting continued safe operations can be captured in the Aerodrome Certification Basis Template. The template and guide for use of the template can be found on the DASA website.

Establishing arrangements for continuing safe operations

11.2.1.49 An Aerodrome Operator must ensure that, at any time in its operating life, an aerodrome condition supports safe flight operations. The design information that enables the AD OPR to execute the continuing function is an integral part of aerodrome certification. DASA must be assured that the AD OPR has sufficient information to ensure that the conditions for safe flight operation are met to issue and maintain certification. An applicant for aerodrome certification must provide (amongst other things) the design information and procedures in order to enable the AD OPR to ensure the continuing safe flight operations at the Aerodrome. The following information is the minimum required to be provided:

1. Documents that describe specific scheduled maintenance task and their frequency of completion

2. Descriptive data and instructions that enable inspections, processes and procedures necessary to keep the aerodrome in a condition for safe flight operation

11.2.1.50 The AD OPR will use this information to develop and conduct maintenance and inspection processes and procedures to ensure that the aerodrome is always in a condition to support safe flight operations.

Superseded

11.2.1.51 DASA will review, on a non-exhaustive basis, the information and procedures associated with continuing safe operation of the aerodrome before issuing an aerodrome certificate. Upon becoming aware of any non-compliance, the applicant and/or the AD OPR should bring this to the attention of DASA as it has the potential to affect the certification status.

Application for an Aerodrome Certificate

11.2.1.52 On completion of all compliance demonstration, including approval of all MACRIs, the applicant should start completing the application form for an Aerodrome Certificate. An application to DASA for an aerodrome certificate should use DASA Form – Application for Aerodrome Certificate. Submit the form, along with the supporting documentation, via the DASA Aerodromes Group Mailbox for approval.

11.2.1.53 Aerodrome Continued Compliance and Continuing Safe Operation are also integral parts of Aerodrome Initial Certification. For issue of an Aerodrome Certificate by the DASA, the applicant must (amongst other things) implement arrangements to support continued aerodrome compliance with the CB and provide design information to support the continuing safe operation of the Aerodrome. Before an application is made these aspects should be completed.

11.2.2 Arrangements for maintaining aerodrome certification

Aerodrome design changes

11.2.2.1 Any change to the design, construction or operations of an aerodrome, that has appreciable effect on the safety of flight operations or changes the aerodrome configuration so that it deviates from the DASA agreed CB, invalidates the aerodrome certificate and therefore, must be presented to DASA for re-certification. The purpose of the re-certification process is to assure that the aerodrome continues to be subject to engineering rigour and that the aerodrome remains in a condition that supports safe-flight operations over its service life.

11.2.2.2 Approval of all design changes follows the same principles of certification of a new aerodrome. For all changes, including changes to the Operating intent that affect the design, the certification basis of the change must be established, the means of compliance determined and compliance with the certification basis demonstrated and declared. Alteration of any design data covered by the Aerodrome Certificate and used for Aerodrome Continued Compliance or authorised data for completing Aerodrome continuing compliance also requires a design change approval.

11.2.2.3 Changes that have no appreciable effect on the safety of flight operations do not require presentation to DASA. Any change which changes the agreed CB requires DASA approval. The expectation is that an AD OPR will use professional judgement in determining whether a design change has an 'appreciable' effect on safety, and when in doubt should consult DASA. Determinations for these changes must be available and may be subject to DASA review during oversight activities. The AD OPR is expected to apply the same rigour / standard in implementing those design changes without an appreciable effect on safety of flight, as they would for those changes when they apply to DASA. That is, they should comprehensively complete all steps of the certification process, as applicable, without needing to submit the application to DASA.

11.2.2.4 DASA will agree to CP and approve CB requirements for those changes submitted to DASA, inspect selected compliance evidence, approve all tailoring of requirements and approve all applications for changes. The applicant is encouraged to consult the DASA if there is any doubt regarding whether a change requires re-certification.

Superseded

11.2.2.5 For any change, the applicant should discuss the content of the CP with DASA until both parties are satisfied, then submit a simplified CP to seek agreement from DASA.

11.2.2.6 An application for DASA's certification for an aerodrome is to be made by writing to DASA. The application should include reference to all information required to be developed by the CP. The Application for a change to the aerodrome certificate can be made using the Application for Aerodrome Certificate.

Annex:

(a) Aerodrome Design Requirements

Superseded

11.1.1 DASR 139 Aerodromes Overview

11.1.1.1 To support safe aircraft operations at Defence aerodromes, the Defence Aviation Safety Authority (DASA) released the Defence Aviation Safety Regulations 139 – Aerodromes (DASR 139). These regulations require all Defence aerodromes to be classified as 'certified' or 'non-certified'. Where DASR 139 refers to the term 'aerodrome', it should be read to include:

1. airport
2. airfield
3. airbase
4. heliport (land based or shipborne).

11.1.1.2 DASR 139 deals with, *inter alia*, two key approvals:

1. Aerodrome Operator (AD OPR) Organisation approvals
2. Defence Certified Aerodrome approvals.

Classification of aerodromes (Certified/Non-Certified)

11.1.1.3 Defence aerodromes may be certified or non-certified. DASA's decision[1] to classify an aerodrome as a Certified Aerodrome is based on meeting one of the following four criteria[2]:

1. there is a terminal instrument flight procedure[3] (not including Airborne Radar Approach (ARA) per se) for the aerodrome[4]
2. there are regular civil commercial passenger operations at the aerodrome
3. there are frequent aircraft operations at the aerodrome[5]
4. Defence flight operations at the aerodrome are often inherently hazardous, beyond the scope of normal civilian operations—and the provision of a well-designed/ maintained aerodrome is a key safety risk control[6].

11.1.1.4 DASA developed these criteria through benchmarking certification criteria and information from the Civil Aviation Safety Authority, the European Union Aviation Safety Agency and the International Civil Aviation Organisation tailored to the context of Defence aviation operations at Defence aerodromes.

Guidance for Non-Certified Defence Aerodromes

11.1.1.5 Non-certified Defence aerodromes are not subject to DASR 139 requirements. However, a commander's obligations under the WHS Act 2011 still apply. The underlying principles in DASR 139 (and the Defence Aviation Safety Design Requirements Manual (DASDRM) Section 6 standards)

Superseded

provide guidance to the responsible commander[7] for operation of a non-certified aerodrome—in ensuring that the aerodrome equipment, systems and installations support safe aviation operations.

There could also be more than one responsible commander[8] at any one time[9], depending on the operation of the aerodrome.

11.1.1.6 If the design or operating intent change throughout the life of a non-certified aerodrome, certification and assurance may be warranted under DASR 139. Those responsible for operating/ managing the aerodrome should contact DASA for guidance if such changes (eg major design changes) occur.

Certified Aerodromes

11.1.1.7 The AD OPR organisation must submit an application to DASA for an Aerodrome Certificate for those aerodromes requiring certification. The Aerodrome Certification process is in Chapter 5.3 Annex V.

11.1.1.8 On determining that the aerodrome and the aerodrome operations meet all DASR 139 requirements, DASA will issue an amendment to the AD OPR Certificate (AD OPRC) Operations Specification (OpSpec) — authorising the approved AD OPR to operate the aerodrome as a DASR 139 Certified Aerodrome. Chapter 5.3 Annex B details the process for updating the OpSpec.

Aerodrome Operator management systems and documentation

Aerodrome Operator organisational structure

11.1.1.9 An AD OPR is an organisation consisting of operational, maintenance and engineering personnel that:

1. forms part of a Force Element Group or equivalent force structure
2. must achieve the roles and responsibilities of DASR 139. (See Chapter 5.3 Annex B for the AD OPR approval process).

11.1.1.10 Due to the complexities of the organisations, facilities and locations associated with individual aerodromes, clear understanding and documentation of an organisational structure will enhance command's ability to achieve safe flight operations. The Services outsource to other Defence Groups, such as Security and Estate Group, Chief Information Officer Group and Capability Acquisition and Sustainment Group, to deliver aerodrome capability. Contractors are utilised extensively to complete tasks. This occurs at the AD OPR and base level.

1.1.1.11 DASR AMC 139.30.2.g requires the AD OPR to include an 'outline of relevant aerodrome management arrangements' in the AD OPR Compliance Statement. This outline should include aerodrome management arrangements with subordinates, subordinate organisations (eg wings/ units), supporting Defence groups, contractors and other organisations that support DASR 139 compliance. The AD OPR should include details of formal agreements which such organisations or individuals in the Compliance Statement.

11.1.1.12 At the base level, DASR AMC 139.50.2 requires the Aerodrome Manual to include the aerodrome's organisation and management structure, including agreements with civil operators. The description of organisation and management arrangements should include relationships with organisations that support the AD OPR's local team to achieve and maintain DASR 139 compliance.

Superseded

This should include any subcontractors from supporting organisations and details of formal agreements.

Personnel competency

11.1.1.13 As the safe operation and maintenance of an aerodrome requires a large number of personnel working in a range of fields and disciplines, ensuring their competence is essential. To ensure AD OPR personnel meet the requirements of DASR AMC 139.100 (to obtain, complete and maintain effective competency), AD OPRs should define the training, qualifications and authorisations required for personnel undertaking a role in support of aerodrome operation. These may include training and assessment programs pertaining to airside awareness, aerodrome rescue and firefighting, operations, engineering and maintenance.

Aerodrome management systems and documentation

Aerodrome documentation

11.1.1.14 DASA requires evidence demonstrating suitable systems for the maintenance and operation of each aerodrome are in place. These artefacts are part of the Aerodrome Manual requirements. There are a number of systems, including the Quality Management System and Safety Management System, which the AD OPR may implement across the organisation or have aerodromes establish individually. Regardless, when applying to add a Certified Aerodrome to an AD OPRC OpSpec, the AD OPR must include details of the implemented organisational systems in the Aerodrome Manual.

11.1.1.15 DASA reviews these documents on receipt of an application for addition of a DASR 139 Certified Aerodrome to an AD OPRC OpSpec. These documents form part of the evidence supporting compliance with the regulation.

Aerodrome maintenance program

11.1.1.16 Failure to follow the aerodrome maintenance program may lead to DASA making a finding against the AD OPR approval, and can affect certification. Examples of arrangements (systems and procedures) used to enact the aerodrome maintenance program plan include:

1. repainting of markings – periodic repaint
2. electrical system works – continuity testing
3. periodic friction testing
4. obstacle surveys
5. aerodrome technical inspections
6. aerodrome serviceability inspections.

11.1.1.17 There is no requirement to submit an aerodrome maintenance program to DASA. However, the program should be available for DASA on request and may be reviewed as part of initial approval and oversight activities.

Superseded

11.2.1 Aerodrome Certificate

Certification process and programs

11.2.1.1 The Aerodrome Certificate is a certificate granted to an Aerodrome Operator (AD OPR) by DASA certifying that the aerodrome meets the technical specifications outlined in its certification basis. The Aerodrome Certificate addresses the requirements of DASR 139.80.

11.2.1.2 To achieve aerodrome certification, the following five primary activities must be undertaken:

1. define a DASA-agreed CB for the aerodrome
2. demonstrate that the aerodrome design and construction complies with the agreed CB
3. declare that the aerodrome design and construction complies with the agreed CB
4. implement arrangements to support continued aerodrome compliance with the CB
5. provide design information to support continuing safe operation of the aerodrome.

11.2.1.3 Each of these mandated activities (and other supporting aspects) form the basis of the certification process.

11.2.1.4 The following figure shows the aerodrome certification activities:

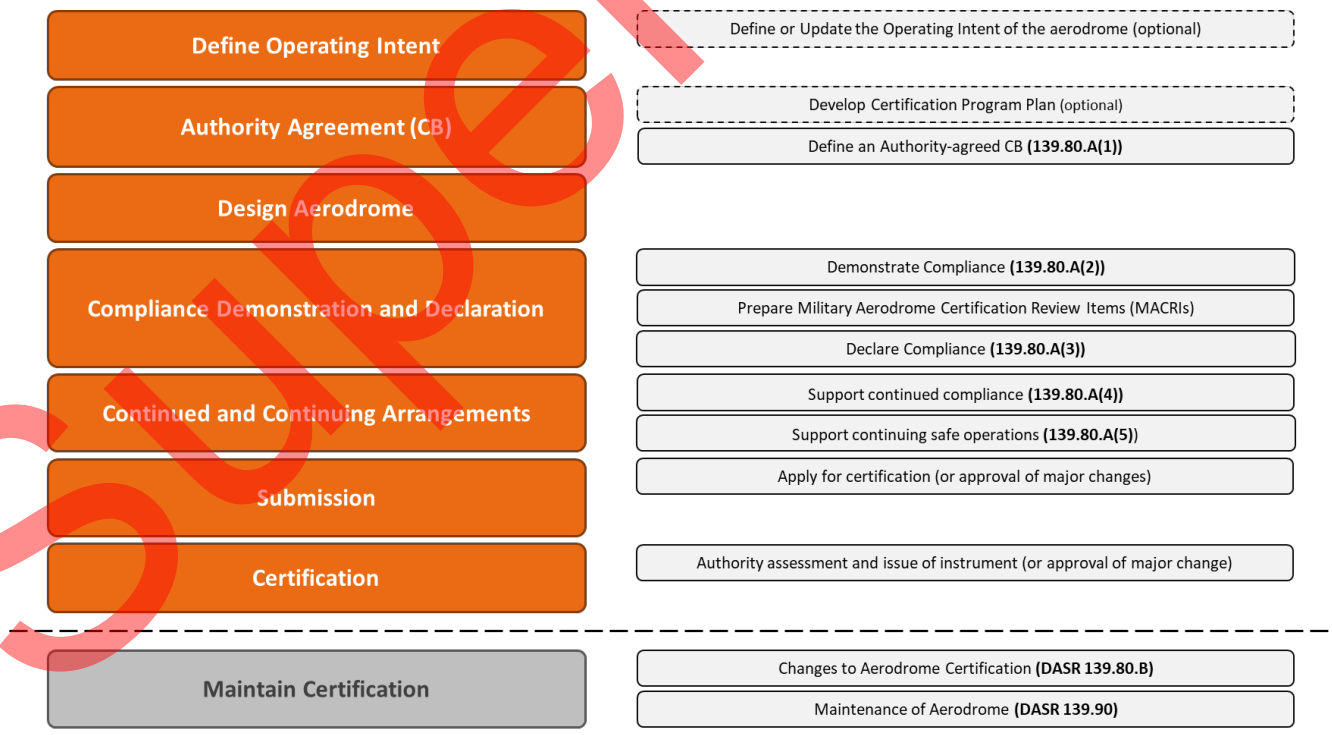


Figure 1: Aerodrome certification activities diagram

Superseded

11.2.1.5 The certification program of work captures the operating intent; establishes the design requirements; designs, constructs and demonstrates compliance to the design requirements; establishes arrangements for continued compliance to the certification basis; and establishes arrangements for continuing safe operations at the aerodrome. The plan documenting this program of work is the Certification Program Plan (CPP), which will help align and coordinate all stakeholders involved in the aerodromes certification activity.

Develop a Certification Program

11.2.1.6 Obtaining an Aerodrome Certificate requires the completion of the Certification Program (CP) conforming to DASR 139 requirements. A CPP is not mandated by the regulations, but a project should consider developing a CPP. A CPP will aid the process by gaining agreement with DASA, of the proposed approach to achieve certification. The plan then informs and aligns all stakeholders in an effort to increase efficiency in a complex process. Acquisition projects and complex changes should produce a detailed CP while a simplified CP may be acceptable for less complex changes.

11.2.1.7 DASA will review and endorse a CPP if found suitable to support the future application for a certificate. DASA will be available to support the applicant throughout the certification process and provide guidance and feedback where needed. This will reduce the likelihood of an application being incomplete at the time of submission.

11.2.1.8 The applicant should submit a mature draft of the document to the DASA aerodromes mailbox for comments and feedback. The Aerodrome and Heliport section in DASA and the applicant will discuss the content of the CPP until both parties are satisfied that the certification activities are appropriate and sufficiently detailed for the stage of the project. An applicant organisation may submit a signed CPP to DASA for endorsement.

Certification Basis

11.2.1.9 An Aerodrome's CB is an agreed set of requirements needed to support safe flight operations at the aerodrome. To receive an Aerodrome Certificate, the aerodrome must be compliant with the CB. The basis of a Defence Aerodrome CB is a set of standards, which are recognised, credible and defensible. The Authority identifies these recognised standards within Section 6 of the Defence Aviation Safety Design Requirements Manual (DASDRM) (For details on the DASDRM, refer to Annex A). The applicable requirements extracted from the DASDRM are tailored to take into account the operating intent of the aerodrome. The CB may also include any special detailed technical requirements that address unique issues beyond the scope of the design requirements contained in the DASDRM. A CB thus comprises of:

1. applicable design requirements prescribed in the relevant chapter of Section 6 of the DASDRM
2. any tailoring to the above design requirements to meet an aerodrome's operating intent
3. any additional technical requirements that are needed to address unique issues beyond the scope of design requirements in Section 6 of the DASDRM.

11.2.1.10 DASA has developed templates to support the creation of Certification Basis for land-based aerodromes intended primarily for use by fixed wing aircraft; land-based heliports, and shipborne heliports. These templates contain all the design requirements from Chapter 2, Chapter 3, and Chapter 4 of Section 6 of the DASDRM respectively that the applicant can use to develop a CB and track certification activities.

Superseded

11.2.1.11 For shipborne heliports the CB will normally be established as part of the Projects Material Seaworthiness Requirement Set (MSRS) as defined in the N-Library. Notwithstanding the Seaworthiness system requirements, the subset of a Projects MSRS related to aerodrome certification (those requirements based on the DASDRM design requirements) – the shipborne heliport CB requires DASA agreement.

Operating intent informing the Certification Basis

11.2.1.12 As the operations taking place at each Defence aerodrome are unique, not all the requirements contained in the DASDRM are applicable to every aerodrome. To help identify those requirements that are relevant and those requirements that are not, there is a clear need for an understanding of the operations taking place at an aerodrome. The achievement of the design, construction and certification of an aerodrome is unlikely without the understanding of the operations at the aerodrome. As such, a documented operating intent is critical to establishing a CB and gaining certification. A documented operating intent is also likely to help inform development of compliance demonstration programs and support on-going safe flight operations at the aerodrome.

11.2.1.13 A high-level description of the facilities and operations at an aerodrome are often captured in a Statement of Operating Intent (SOI) (or similar documents – similar documents may include the Statement of Operating Intent and Usage (SOIU) and the Operating and Support Intent (OSI)) for an aerodrome). While DASA does not mandate the development or update of a specific document for Defence aerodromes (such as a SOIU), it is important to have this information documented before commencing the development of the CB. The basis for tailoring DASDRM requirements is a documented operating intent, justifying the removal of different requirements that are not relevant to the aerodrome, or identifying and adding special technical requirements. The Certification Basis Templates provide the functionality to capture the justification of tailoring of the design requirement set.

Certification Basis tailoring

11.2.1.14 The provisional CB represents the 'target' aerodrome design and construction requirements (note – use of the term 'provisional CB' is simply because there may be additional tailoring identified as the design and production process develops). During design and construction of an aerodrome, it is unlikely that there will be compliance with all the design requirements of a provisional CB. These shortfalls require management to ensure elimination of any risks posed by the non-compliances or that they are otherwise minimised SFARP. Addressing these shortfalls will result in changes to the CB. These changes need to be done through the Military Aerodrome Certification Review Item (MACRI) where either alternate requirements are used which have been demonstrated to achieve an equivalent level of safety or limitations/treatments are applied to the CB requirement to eliminate or otherwise minimise risks SFARP to safe flight operations.

11.2.1.15 Tailoring of the CB must be based upon:

1. a safety argument that demonstrates an equivalent level of safety can be achieved through a tailored design requirement, or
2. detailed Safety Risk Management (SRM) (normally in the form of an Aerodrome Issue Paper (ADIP)) if compliance with the design requirement would adversely affect Defence capability, and risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means.

11.2.1.16 The Certification Basis Templates can be used to identify the tailoring that has occurred and reference all the supporting documentation.

Superseded

11.2.1.17 DASA approves aerodrome CBs and any changes to an extant CB. Approval of the provisional CB for an aerodrome can be through a formal standalone approval of the CB or combined with approval of the CPP.

11.2.1.18 Approval for updates to a CB can be through a formal standalone process similar to that undertaken for a provisional CB or combined with the CPP for the change. For a change, the applicant only needs to identify the affected CB requirements for approval.

11.2.1.19 DASA must approve all tailoring of the CB prior to the application of the aerodrome certificate.

Demonstrate compliance

11.2.1.20 Once the CB has been established, and the design and construction of an aerodrome commenced or completed, the applicant needs to demonstrate, through the production of evidence, that the design and construction of the aerodrome meets the agreed CB.

11.2.1.21 Compliance demonstration evidence must be available for inspection by the DASA (on a non-exhaustive basis) in order to provide independent assurance that the evidence is suitable, and that the evidence demonstrates compliance to the agreed CB requirements.

11.2.1.22 Compliance demonstration evidence is contained in compliance documents. It may consist of design data, test plans and reports, analyses, drawings, processes, material specifications, operating limitations, aerodrome manual and supplements, and maintenance program and supplements amongst others. The applicant is responsible for demonstrating compliance by the agreed means during the CP, and making the evidence available to DASA for inspection.

11.2.1.23 Generation of evidence is solely the responsibility of the applicant. All compliance documents must be independently checked by the applicant and signed as complete and accurate regardless of DASA's inspection requirements. The applicant shall compile a list of evidence produced to demonstrate compliance against each line item of the CB; and provide a formal declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The evidence can be captured in the DASA CB template tool or another applicant specified means. A 'User Guide – Certification Basis Template Guidance' provides information on how to use the CB template tool to capture the compliance demonstration evidence which can be obtained from DASA.

11.2.1.24 The process for the RANs Materiel Assurance, described in the N-Library, will normally be used to plan and complete compliance demonstration for shipborne heliports. However, the requirement to make all evidence that demonstrates compliance to the agreed CB available to DASA is still applicable.

11.2.1.25 Throughout the CP, DASA will inspect selected compliance evidence to the extent necessary to assure the safety of the design and construction of the aerodrome. DASA will review, on a non-exhaustive basis, any compliance evidence used to support the declaration of compliance to provide the independent assurance necessary to support the granting of an Aerodrome Certificate.

Management of non-compliances

11.2.1.26 During compliance demonstration activities and over the life of the aerodrome, shortfalls / non-compliances against the aerodrome CB design requirements may be identified. Non-compliances against the CB should be examined for impact to certification and safety of flight operations.

Superseded

11.2.1.27 Where it is not reasonably practicable to change the aerodrome design OR where evidence cannot be generated to demonstrate compliance with a design requirement in the CB, the applicant should pursue approval for tailoring of the CB. Central to this tailoring process are the MACRI and the ADIP.

11.2.1.28 A MACRI is a document, which captures an applicant's proposal to modify an aerodromes CB design requirement, and DASA approval of the modification. There are two types of MACRI, an Equivalent Safety Finding (ESF) MACRI and an Exception MACRI. Development of a MACRI should only proceed if it is not reasonably practicable to eliminate the risks through engineering / design changes. For details on the MACRI process, refer to Factsheet – Military Aerodrome Certification Review Items.

11.2.1.29 ADIP are used when an applicant identifies an enduring design deficiency, which requires a risk treatment decision by Command. An ADIP usually underpins an Exception MACRI but may also be used to support an ESF MACRI. A safety argument should normally be used to support an ESF MACRI. However, if the Safety argument is complex and the controls contentious, an ADIP can be used to capture the argument and controls and gain operator agreement. Factsheet *Aerodrome Issue Paper* describes what constitutes an ADIP, and illustrates the process for raising and processing an ADIP, including the roles of the applicant / person evaluating the Non-compliance, and the roles of the DASA and Command.

11.2.1.30 By Approving an ADIP, DASA is providing assurance that the risk management is following the 7-Step SRM process and is defensible. By approving a MACRI, DASA approves the tailoring of the CB. Once approved by DASA, any tailoring of the CB requirements should be captured in the CB Template, or an applicant specified template, with the corresponding MACRI information. For details on how to use the template to capture this information, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.31 DASA reviews all MACRIs and supporting ADIP and will provide approval if the DASA is assured a credible and defensible safety argument or application of the SRM has been completed. The approval provides agreement to the change in the CB requirement.

Declare compliance

11.2.1.32 When applying for certification of an Aerodrome under DASR 139.80, the applicant must make a declaration of compliance. The purpose of the declaration is to ensure the applicant organisation has considered and confirmed that compliance has been demonstrated to all CB requirements and no aspect is unsafe for use as intended. The applicant must identify a suitable person to make the declaration – usually the person responsible for design/manufacture/inspection of the aerodrome.

11.2.1.33 The person chosen to declare compliance must be a competent, qualified and authorised individual. Whilst DASA does not mandate whom is such a person, the applicant is to propose and justify why the nominated person is suitable. DASA does however have the expectation that the person making the declaration would be a senior engineer of an accountable organisation. This person does not have to be a part of the applicant's organisation; though this should be clearly identified in the Certification Program Plan.

11.2.1.34 When all Military Aerodrome Certification Review Items (MACRIs) have been approved and all compliance demonstration evidence has been developed and approved, the applicant is in a position to make a declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The declaration can be made as part of the application for an Aerodrome

Superseded

Certificate, for which a DASA form has been developed (see Forms area below), or via another means (which could be formally agreed in the CPP).

11.2.1.35 The declaration of compliance is made by the applicant organisation, with the applicant declaring that:

1. the Design meets the Certification Basis
2. the Construction meets the Design
3. all non-compliance issues are addressed through DASA approved MACRIs.

11.2.1.36 Declaration of compliance can only be completed:

1. after DASA approval of all MACRIs
2. and after compliance has been shown against ALL requirements in the CB

11.2.1.37 An applicant can make their Declaration in the Aerodrome Certification application form (Application for Aerodrome Certificate). When submitting an application for an Aerodrome Certificate, the submission of the declaration of compliance must be accompanied with:

1. the Certification Check List (CCL) - to be made available and can be attached as an Annex to the application form
2. DASA must be given access to all compliance evidence referenced in the CCL
3. evidence of arrangements to support continued compliance with the CB
4. evidence of arrangements to manage design information for continuing safe operations.

11.2.1.38 Prior to completion of the declaration of compliance and all supporting documentation, the Applicant may choose to invite DASA to review completed compliance demonstration evidence and/or supporting documents.

11.2.1.39 The Applicant should be pro-active and engage with DASA as early as possible in the certification process to plan for early reviews of completed documents.

11.2.1.40 DASA will not review early draft versions, only mature drafts of documents.

11.2.1.41 The applicant can use the CB template, developed by the DASA, to keep track of compliance demonstration activities against each line item of the CB, including MACRI submissions and approvals. Evidence of arrangements to support continued compliance with the CB, and evidence of arrangements to manage design information for continuing safe operations can be referenced in this template. Once completed, the CCL sheet from the template can be attached as an annex to the Application form. While the use of this CB template is not mandatory, the information captured within a completed CCL needs to be made available to the DASA in an easily discernible manner. For details on how to use the CB template, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.42 DASA will review the compliance declaration, including the personnel competency of the person making the declaration, as part of the aerodrome certification.

Superseded

11.2.1.43 DASA may choose to inspect some, most or all of the compliance demonstration evidence provided by the applicant. The applicant has the responsibility to ensure all compliance evidence is available to DASA.

Establishing arrangements for continued compliance

11.2.1.44 Continued (Design) aerodrome compliance encompasses all tasks, to be carried-out to verify that the conditions under which an aerodrome certificate has been granted, continue to be fulfilled throughout its period of validity. Arrangements that enable continued aerodrome compliance are an integral part of aerodrome certification. DASA must be assured that the aerodrome will continue to comply with the aerodrome certification basis and that the safe design of the aerodrome will be retained through the service life of the Aerodrome to issue and maintain certification.

11.2.1.45 Aerodromes can have a long service life, and changes are often made to the aerodrome design, construction and operation during that service life. Furthermore, the original design and/or construction of the aerodrome may include latent defects, not evident at the time of original certification. Arrangements to support continued aerodrome compliance with the aerodrome certification basis is essential. The following systems and procedures are a minimum to be implemented to support continued compliance:

1. A system to retain, and retention of all relevant design information, drawings and test reports; including inspection records for the aerodrome.

2. A system and procedures to capture and manage the configuration of the aerodrome design.

3. A system and processes to collect, investigate and analyse reports of and information related to failures, malfunctions, defects or other occurrences which might adversely affect safe operation of the aerodrome, and to implement corrective action if warranted.

11.2.1.46 For initial certification, the applicant is to establish and provide evidence of these systems and procedures. These arrangements will then be implemented and monitored by the AD OPR in service.

11.2.1.47 DASA will review, on a non-exhaustive basis, the information and procedures provided for continued aerodrome compliance arrangements amongst other things before issuing an aerodrome certificate. Furthermore, DASA may review any non-compliance, occurrences or design defects communicated by the applicant and/or the AD OPR for the potential to affect the certification status and whether the actions taken to maintain support to safe flight operations are credible and defensible.

11.2.1.48 A record of the documents and information that is provided for supporting continued safe operations can be captured in the Aerodrome Certification Basis Template. The template and guide for use of the template can be found on the DASA website.

Establishing arrangements for continuing safe operations

11.2.1.49 An Aerodrome Operator must ensure that, at any time in its operating life, an aerodrome condition supports safe flight operations. The design information that enables the AD OPR to execute the continuing function is an integral part of aerodrome certification. DASA must be assured that the AD OPR has sufficient information to ensure that the conditions for safe flight operation are met to issue and maintain certification. An applicant for aerodrome certification must provide (amongst other things) the design information and procedures in order to enable the AD OPR to ensure the

Superseded

continuing safe flight operations at the Aerodrome. The following information is the minimum required to be provided:

1. Documents that describe specific scheduled maintenance task and their frequency of completion

2. Descriptive data and instructions that enable inspections, processes and procedures necessary to keep the aerodrome in a condition for safe flight operation

11.2.1.50 The AD OPR will use this information to develop and conduct maintenance and inspection processes and procedures to ensure that the aerodrome is always in a condition to support safe flight operations.

11.2.1.51 DASA will review, on a non-exhaustive basis, the information and procedures associated with continuing safe operation of the aerodrome before issuing an aerodrome certificate. Upon becoming aware of any non-compliance, the applicant and/or the AD OPR should bring this to the attention of DASA as it has the potential to affect the certification status.

Application for an Aerodrome Certificate

11.2.1.52 On completion of all compliance demonstration, including approval of all MACRIs, the applicant should start completing the application form for an Aerodrome Certificate. An application to DASA for an aerodrome certificate should use DASA Form – Application for Aerodrome Certificate. Submit the form, along with the supporting documentation, via the DASA Aerodromes Group Mailbox for approval.

11.2.1.53 Aerodrome Continued Compliance and Continuing Safe Operation are also integral parts of Aerodrome Initial Certification. For issue of an Aerodrome Certificate by the DASA, the applicant must (amongst other things) implement arrangements to support continued aerodrome compliance with the CB and provide design information to support the continuing safe operation of the Aerodrome. Before an application is made these aspects should be completed.

11.2.2 Arrangements for maintaining aerodrome certification

Aerodrome design changes

11.2.2.1 Any change to the design, construction or operations of an aerodrome, that has appreciable effect on the safety of flight operations or changes the aerodrome configuration so that it deviates from the DASA agreed CB, invalidates the aerodrome certificate and therefore, must be presented to DASA for re-certification. The purpose of the re-certification process is to assure that the aerodrome continues to be subject to engineering rigour and that the aerodrome remains in a condition that supports safe-flight operations over its service life.

11.2.2.2 Approval of all design changes follows the same principles of certification of a new aerodrome. For all changes, including changes to the Operating intent that affect the design, the certification basis of the change must be established, the means of compliance determined and compliance with the certification basis demonstrated and declared. Alteration of any design data covered by the Aerodrome Certificate and used for Aerodrome Continued Compliance or authorised data for completing Aerodrome continuing compliance also requires a design change approval.

11.2.2.3 Changes that have no appreciable effect on the safety of flight operations do not require presentation to DASA. Any change which changes the agreed CB requires DASA approval. The

Superseded

expectation is that an AD OPR will use professional judgement in determining whether a design change has an 'appreciable' effect on safety, and when in doubt should consult DASA. Determinations for these changes must be available and may be subject to DASA review during oversight activities. The AD OPR is expected to apply the same rigour / standard in implementing those design changes without an appreciable effect on safety of flight, as they would for those changes when they apply to DASA. That is, they should comprehensively complete all steps of the certification process, as applicable, without needing to submit the application to DASA.

11.2.2.4 DASA will agree to CP and approve CB requirements for those changes submitted to DASA, inspect selected compliance evidence, approve all tailoring of requirements and approve all applications for changes. The applicant is encouraged to consult the DASA if there is any doubt regarding whether a change requires re-certification.

11.2.2.5 For any change, the applicant should discuss the content of the CP with DASA until both parties are satisfied, then submit a simplified CP to seek agreement from DASA.

11.2.2.6 An application for DASA's certification for an aerodrome is to be made by writing to DASA. The application should include reference to all information required to be developed by the CP. The Application for a change to the aerodrome certificate can be made using the Application for Aerodrome Certificate.

Annex:

(a) Aerodrome Design Requirements

Superseded

11.2. Aerodrome Certification

11.1 Aerodrome Regulation

11.1.1 DASR 139 Aerodromes Overview

11.1.1.1 To support safe aircraft operations at Defence aerodromes, the Defence Aviation Safety Authority (DASA) released the Defence Aviation Safety Regulations 139 – Aerodromes (DASR 139). These regulations require all Defence aerodromes to be classified as 'certified' or 'non-certified'. Where DASR 139 refers to the term 'aerodrome', it should be read to include:

1. airport
2. airfield
3. airbase
4. heliport (land based or shipborne).

11.1.1.2 DASR 139 deals with, *inter alia*, two key approvals:

1. Aerodrome Operator (AD OPR) Organisation approvals
2. Defence Certified Aerodrome approvals.

Classification of aerodromes (Certified/Non-Certified)

11.1.1.3 Defence aerodromes may be certified or non-certified. DASA's decision[1] to classify an aerodrome as a Certified Aerodrome is based on meeting one of the following four criteria[2]:

1. there is a terminal instrument flight procedure[3] (not including Airborne Radar Approach (ARA) per se) for the aerodrome[4]
2. there are regular civil commercial passenger operations at the aerodrome
3. there are frequent aircraft operations at the aerodrome[5]
4. Defence flight operations at the aerodrome are often inherently hazardous, beyond the scope of normal civilian operations—and the provision of a well-designed/ maintained aerodrome is a key safety risk control[6].

11.1.1.4 DASA developed these criteria through benchmarking certification criteria and information from the Civil Aviation Safety Authority, the European Union Aviation Safety Agency and the International Civil Aviation Organisation tailored to the context of Defence aviation operations at Defence aerodromes.

Guidance for Non-Certified Defence Aerodromes

11.1.1.5 Non-certified Defence aerodromes are not subject to DASR 139 requirements. However, a commander's obligations under the WHS Act 2011 still apply. The underlying principles in DASR 139 (and the Defence Aviation Safety Design Requirements Manual (DASDRM) Section 6 standards)

Superseded

provide guidance to the responsible commander[7] for operation of a non-certified aerodrome—in ensuring that the aerodrome equipment, systems and installations support safe aviation operations.

There could also be more than one responsible commander[8] at any one time[9], depending on the operation of the aerodrome.

11.1.1.6 If the design or operating intent change throughout the life of a non-certified aerodrome, certification and assurance may be warranted under DASR 139. Those responsible for operating/ managing the aerodrome should contact DASA for guidance if such changes (eg major design changes) occur.

Certified Aerodromes

11.1.1.7 The AD OPR organisation must submit an application to DASA for an Aerodrome Certificate for those aerodromes requiring certification. The Aerodrome Certification process is in Chapter 5.3 Annex V.

11.1.1.8 On determining that the aerodrome and the aerodrome operations meet all DASR 139 requirements, DASA will issue an amendment to the AD OPR Certificate (AD OPRC) Operations Specification (OpSpec) — authorising the approved AD OPR to operate the aerodrome as a DASR 139 Certified Aerodrome. Chapter 5.3 Annex B details the process for updating the OpSpec.

Aerodrome Operator management systems and documentation

Aerodrome Operator organisational structure

11.1.1.9 An AD OPR is an organisation consisting of operational, maintenance and engineering personnel that:

1. forms part of a Force Element Group or equivalent force structure
2. must achieve the roles and responsibilities of DASR 139. (See Chapter 5.3 Annex B for the AD OPR approval process).

11.1.1.10 Due to the complexities of the organisations, facilities and locations associated with individual aerodromes, clear understanding and documentation of an organisational structure will enhance command's ability to achieve safe flight operations. The Services outsource to other Defence Groups, such as Security and Estate Group, Chief Information Officer Group and Capability Acquisition and Sustainment Group, to deliver aerodrome capability. Contractors are utilised extensively to complete tasks. This occurs at the AD OPR and base level.

1.1.1.11 DASR AMC 139.30.2.g requires the AD OPR to include an 'outline of relevant aerodrome management arrangements' in the AD OPR Compliance Statement. This outline should include aerodrome management arrangements with subordinates, subordinate organisations (eg wings/ units), supporting Defence groups, contractors and other organisations that support DASR 139 compliance. The AD OPR should include details of formal agreements which such organisations or individuals in the Compliance Statement.

11.1.1.12 At the base level, DASR AMC 139.50.2 requires the Aerodrome Manual to include the aerodrome's organisation and management structure, including agreements with civil operators. The description of organisation and management arrangements should include relationships with organisations that support the AD OPR's local team to achieve and maintain DASR 139 compliance.

Superseded

This should include any subcontractors from supporting organisations and details of formal agreements.

Personnel competency

11.1.1.13 As the safe operation and maintenance of an aerodrome requires a large number of personnel working in a range of fields and disciplines, ensuring their competence is essential. To ensure AD OPR personnel meet the requirements of DASR AMC 139.100 (to obtain, complete and maintain effective competency), AD OPRs should define the training, qualifications and authorisations required for personnel undertaking a role in support of aerodrome operation. These may include training and assessment programs pertaining to airside awareness, aerodrome rescue and firefighting, operations, engineering and maintenance.

Aerodrome management systems and documentation

Aerodrome documentation

11.1.1.14 DASA requires evidence demonstrating suitable systems for the maintenance and operation of each aerodrome are in place. These artefacts are part of the Aerodrome Manual requirements. There are a number of systems, including the Quality Management System and Safety Management System, which the AD OPR may implement across the organisation or have aerodromes establish individually. Regardless, when applying to add a Certified Aerodrome to an AD OPRC OpSpec, the AD OPR must include details of the implemented organisational systems in the Aerodrome Manual.

11.1.1.15 DASA reviews these documents on receipt of an application for addition of a DASR 139 Certified Aerodrome to an AD OPRC OpSpec. These documents form part of the evidence supporting compliance with the regulation.

Aerodrome maintenance program

11.1.1.16 Failure to follow the aerodrome maintenance program may lead to DASA making a finding against the AD OPR approval, and can affect certification. Examples of arrangements (systems and procedures) used to enact the aerodrome maintenance program plan include:

1. repainting of markings – periodic repaint
2. electrical system works – continuity testing
3. periodic friction testing
4. obstacle surveys
5. aerodrome technical inspections
6. aerodrome serviceability inspections.

11.1.1.17 There is no requirement to submit an aerodrome maintenance program to DASA. However, the program should be available for DASA on request and may be reviewed as part of initial approval and oversight activities.

Superseded

11.2.1 Aerodrome Certificate

Certification process and programs

11.2.1.1 The Aerodrome Certificate is a certificate granted to an Aerodrome Operator (AD OPR) by DASA certifying that the aerodrome meets the technical specifications outlined in its certification basis. The Aerodrome Certificate addresses the requirements of DASR 139.80.

11.2.1.2 To achieve aerodrome certification, the following five primary activities must be undertaken:

1. define a DASA-agreed CB for the aerodrome
2. demonstrate that the aerodrome design and construction complies with the agreed CB
3. declare that the aerodrome design and construction complies with the agreed CB
4. implement arrangements to support continued aerodrome compliance with the CB
5. provide design information to support continuing safe operation of the aerodrome.

11.2.1.3 Each of these mandated activities (and other supporting aspects) form the basis of the certification process.

11.2.1.4 The following figure shows the aerodrome certification activities:

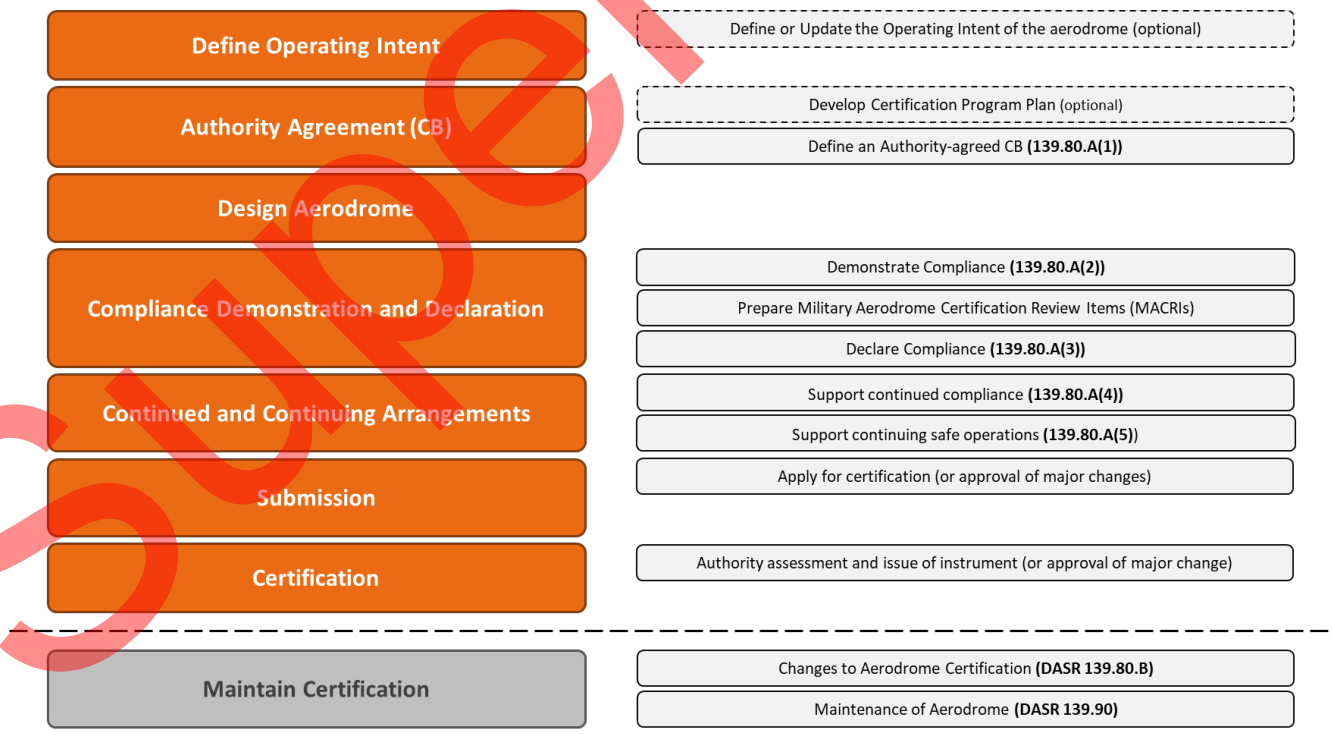


Figure 1: Aerodrome certification activities diagram

Superseded

11.2.1.5 The certification program of work captures the operating intent; establishes the design requirements; designs, constructs and demonstrates compliance to the design requirements; establishes arrangements for continued compliance to the certification basis; and establishes arrangements for continuing safe operations at the aerodrome. The plan documenting this program of work is the Certification Program Plan (CPP), which will help align and coordinate all stakeholders involved in the aerodromes certification activity.

Develop a Certification Program

11.2.1.6 Obtaining an Aerodrome Certificate requires the completion of the Certification Program (CP) conforming to DASR 139 requirements. A CPP is not mandated by the regulations, but a project should consider developing a CPP. A CPP will aid the process by gaining agreement with DASA, of the proposed approach to achieve certification. The plan then informs and aligns all stakeholders in an effort to increase efficiency in a complex process. Acquisition projects and complex changes should produce a detailed CP while a simplified CP may be acceptable for less complex changes.

11.2.1.7 DASA will review and endorse a CPP if found suitable to support the future application for a certificate. DASA will be available to support the applicant throughout the certification process and provide guidance and feedback where needed. This will reduce the likelihood of an application being incomplete at the time of submission.

11.2.1.8 The applicant should submit a mature draft of the document to the DASA aerodromes mailbox for comments and feedback. The Aerodrome and Heliport section in DASA and the applicant will discuss the content of the CPP until both parties are satisfied that the certification activities are appropriate and sufficiently detailed for the stage of the project. An applicant organisation may submit a signed CPP to DASA for endorsement.

Certification Basis

11.2.1.9 An Aerodrome's CB is an agreed set of requirements needed to support safe flight operations at the aerodrome. To receive an Aerodrome Certificate, the aerodrome must be compliant with the CB. The basis of a Defence Aerodrome CB is a set of standards, which are recognised, credible and defensible. The Authority identifies these recognised standards within Section 6 of the Defence Aviation Safety Design Requirements Manual (DASDRM) (For details on the DASDRM, refer to Annex A). The applicable requirements extracted from the DASDRM are tailored to take into account the operating intent of the aerodrome. The CB may also include any special detailed technical requirements that address unique issues beyond the scope of the design requirements contained in the DASDRM. A CB thus comprises of:

1. applicable design requirements prescribed in the relevant chapter of Section 6 of the DASDRM
2. any tailoring to the above design requirements to meet an aerodrome's operating intent
3. any additional technical requirements that are needed to address unique issues beyond the scope of design requirements in Section 6 of the DASDRM.

11.2.1.10 DASA has developed templates to support the creation of Certification Basis for land-based aerodromes intended primarily for use by fixed wing aircraft; land-based heliports, and shipborne heliports. These templates contain all the design requirements from Chapter 2, Chapter 3, and Chapter 4 of Section 6 of the DASDRM respectively that the applicant can use to develop a CB and track certification activities.

Superseded

11.2.1.11 For shipborne heliports the CB will normally be established as part of the Projects Material Seaworthiness Requirement Set (MSRS) as defined in the N-Library. Notwithstanding the Seaworthiness system requirements, the subset of a Projects MSRS related to aerodrome certification (those requirements based on the DASDRM design requirements) – the shipborne heliport CB requires DASA agreement.

Operating intent informing the Certification Basis

11.2.1.12 As the operations taking place at each Defence aerodrome are unique, not all the requirements contained in the DASDRM are applicable to every aerodrome. To help identify those requirements that are relevant and those requirements that are not, there is a clear need for an understanding of the operations taking place at an aerodrome. The achievement of the design, construction and certification of an aerodrome is unlikely without the understanding of the operations at the aerodrome. As such, a documented operating intent is critical to establishing a CB and gaining certification. A documented operating intent is also likely to help inform development of compliance demonstration programs and support on-going safe flight operations at the aerodrome.

11.2.1.13 A high-level description of the facilities and operations at an aerodrome are often captured in a Statement of Operating Intent (SOI) (or similar documents – similar documents may include the Statement of Operating Intent and Usage (SOIU) and the Operating and Support Intent (OSI)) for an aerodrome). While DASA does not mandate the development or update of a specific document for Defence aerodromes (such as a SOIU), it is important to have this information documented before commencing the development of the CB. The basis for tailoring DASDRM requirements is a documented operating intent, justifying the removal of different requirements that are not relevant to the aerodrome, or identifying and adding special technical requirements. The Certification Basis Templates provide the functionality to capture the justification of tailoring of the design requirement set.

Certification Basis tailoring

11.2.1.14 The provisional CB represents the 'target' aerodrome design and construction requirements (note – use of the term 'provisional CB' is simply because there may be additional tailoring identified as the design and production process develops). During design and construction of an aerodrome, it is unlikely that there will be compliance with all the design requirements of a provisional CB. These shortfalls require management to ensure elimination of any risks posed by the non-compliances or that they are otherwise minimised SFARP. Addressing these shortfalls will result in changes to the CB. These changes need to be done through the Military Aerodrome Certification Review Item (MACRI) where either alternate requirements are used which have been demonstrated to achieve an equivalent level of safety or limitations/treatments are applied to the CB requirement to eliminate or otherwise minimise risks SFARP to safe flight operations.

11.2.1.15 Tailoring of the CB must be based upon:

1. a safety argument that demonstrates an equivalent level of safety can be achieved through a tailored design requirement, or
2. detailed Safety Risk Management (SRM) (normally in the form of an Aerodrome Issue Paper (ADIP)) if compliance with the design requirement would adversely affect Defence capability, and risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means.

11.2.1.16 The Certification Basis Templates can be used to identify the tailoring that has occurred and reference all the supporting documentation.

Superseded

11.2.1.17 DASA approves aerodrome CBs and any changes to an extant CB. Approval of the provisional CB for an aerodrome can be through a formal standalone approval of the CB or combined with approval of the CPP.

11.2.1.18 Approval for updates to a CB can be through a formal standalone process similar to that undertaken for a provisional CB or combined with the CPP for the change. For a change, the applicant only needs to identify the affected CB requirements for approval.

11.2.1.19 DASA must approve all tailoring of the CB prior to the application of the aerodrome certificate.

Demonstrate compliance

11.2.1.20 Once the CB has been established, and the design and construction of an aerodrome commenced or completed, the applicant needs to demonstrate, through the production of evidence, that the design and construction of the aerodrome meets the agreed CB.

11.2.1.21 Compliance demonstration evidence must be available for inspection by the DASA (on a non-exhaustive basis) in order to provide independent assurance that the evidence is suitable, and that the evidence demonstrates compliance to the agreed CB requirements.

11.2.1.22 Compliance demonstration evidence is contained in compliance documents. It may consist of design data, test plans and reports, analyses, drawings, processes, material specifications, operating limitations, aerodrome manual and supplements, and maintenance program and supplements amongst others. The applicant is responsible for demonstrating compliance by the agreed means during the CP, and making the evidence available to DASA for inspection.

11.2.1.23 Generation of evidence is solely the responsibility of the applicant. All compliance documents must be independently checked by the applicant and signed as complete and accurate regardless of DASA's inspection requirements. The applicant shall compile a list of evidence produced to demonstrate compliance against each line item of the CB; and provide a formal declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The evidence can be captured in the DASA CB template tool or another applicant specified means. A 'User Guide – Certification Basis Template Guidance' provides information on how to use the CB template tool to capture the compliance demonstration evidence which can be obtained from DASA.

11.2.1.24 The process for the RANs Materiel Assurance, described in the N-Library, will normally be used to plan and complete compliance demonstration for shipborne heliports. However, the requirement to make all evidence that demonstrates compliance to the agreed CB available to DASA is still applicable.

11.2.1.25 Throughout the CP, DASA will inspect selected compliance evidence to the extent necessary to assure the safety of the design and construction of the aerodrome. DASA will review, on a non-exhaustive basis, any compliance evidence used to support the declaration of compliance to provide the independent assurance necessary to support the granting of an Aerodrome Certificate.

Management of non-compliances

11.2.1.26 During compliance demonstration activities and over the life of the aerodrome, shortfalls / non-compliances against the aerodrome CB design requirements may be identified. Non-compliances against the CB should be examined for impact to certification and safety of flight operations.

Superseded

11.2.1.27 Where it is not reasonably practicable to change the aerodrome design OR where evidence cannot be generated to demonstrate compliance with a design requirement in the CB, the applicant should pursue approval for tailoring of the CB. Central to this tailoring process are the MACRI and the ADIP.

11.2.1.28 A MACRI is a document, which captures an applicant's proposal to modify an aerodromes CB design requirement, and DASA approval of the modification. There are two types of MACRI, an Equivalent Safety Finding (ESF) MACRI and an Exception MACRI. Development of a MACRI should only proceed if it is not reasonably practicable to eliminate the risks through engineering / design changes. For details on the MACRI process, refer to Factsheet – Military Aerodrome Certification Review Items.

11.2.1.29 ADIP are used when an applicant identifies an enduring design deficiency, which requires a risk treatment decision by Command. An ADIP usually underpins an Exception MACRI but may also be used to support an ESF MACRI. A safety argument should normally be used to support an ESF MACRI. However, if the Safety argument is complex and the controls contentious, an ADIP can be used to capture the argument and controls and gain operator agreement. Factsheet *Aerodrome Issue Paper* describes what constitutes an ADIP, and illustrates the process for raising and processing an ADIP, including the roles of the applicant / person evaluating the Non-compliance, and the roles of the DASA and Command.

11.2.1.30 By Approving an ADIP, DASA is providing assurance that the risk management is following the 7-Step SRM process and is defensible. By approving a MACRI, DASA approves the tailoring of the CB. Once approved by DASA, any tailoring of the CB requirements should be captured in the CB Template, or an applicant specified template, with the corresponding MACRI information. For details on how to use the template to capture this information, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.31 DASA reviews all MACRIs and supporting ADIP and will provide approval if the DASA is assured a credible and defensible safety argument or application of the SRM has been completed. The approval provides agreement to the change in the CB requirement.

Declare compliance

11.2.1.32 When applying for certification of an Aerodrome under DASR 139.80, the applicant must make a declaration of compliance. The purpose of the declaration is to ensure the applicant organisation has considered and confirmed that compliance has been demonstrated to all CB requirements and no aspect is unsafe for use as intended. The applicant must identify a suitable person to make the declaration – usually the person responsible for design/manufacture/inspection of the aerodrome.

11.2.1.33 The person chosen to declare compliance must be a competent, qualified and authorised individual. Whilst DASA does not mandate whom is such a person, the applicant is to propose and justify why the nominated person is suitable. DASA does however have the expectation that the person making the declaration would be a senior engineer of an accountable organisation. This person does not have to be a part of the applicant's organisation; though this should be clearly identified in the Certification Program Plan.

11.2.1.34 When all Military Aerodrome Certification Review Items (MACRIs) have been approved and all compliance demonstration evidence has been developed and approved, the applicant is in a position to make a declaration that the design and construction of the aerodrome entirely meets the requirements of the CB. The declaration can be made as part of the application for an Aerodrome

Superseded

Certificate, for which a DASA form has been developed (see Forms area below), or via another means (which could be formally agreed in the CPP).

11.2.1.35 The declaration of compliance is made by the applicant organisation, with the applicant declaring that:

1. the Design meets the Certification Basis
2. the Construction meets the Design
3. all non-compliance issues are addressed through DASA approved MACRIs.

11.2.1.36 Declaration of compliance can only be completed:

1. after DASA approval of all MACRIs
2. and after compliance has been shown against ALL requirements in the CB

11.2.1.37 An applicant can make their Declaration in the Aerodrome Certification application form (Application for Aerodrome Certificate). When submitting an application for an Aerodrome Certificate, the submission of the declaration of compliance must be accompanied with:

1. the Certification Check List (CCL) - to be made available and can be attached as an Annex to the application form
2. DASA must be given access to all compliance evidence referenced in the CCL
3. evidence of arrangements to support continued compliance with the CB
4. evidence of arrangements to manage design information for continuing safe operations.

11.2.1.38 Prior to completion of the declaration of compliance and all supporting documentation, the Applicant may choose to invite DASA to review completed compliance demonstration evidence and/or supporting documents.

11.2.1.39 The Applicant should be pro-active and engage with DASA as early as possible in the certification process to plan for early reviews of completed documents.

11.2.1.40 DASA will not review early draft versions, only mature drafts of documents.

11.2.1.41 The applicant can use the CB template, developed by the DASA, to keep track of compliance demonstration activities against each line item of the CB, including MACRI submissions and approvals. Evidence of arrangements to support continued compliance with the CB, and evidence of arrangements to manage design information for continuing safe operations can be referenced in this template. Once completed, the CCL sheet from the template can be attached as an annex to the Application form. While the use of this CB template is not mandatory, the information captured within a completed CCL needs to be made available to the DASA in an easily discernible manner. For details on how to use the CB template, refer to the User Guide – Certification Basis Template which can be obtained from DASA.

11.2.1.42 DASA will review the compliance declaration, including the personnel competency of the person making the declaration, as part of the aerodrome certification.

Superseded

11.2.1.43 DASA may choose to inspect some, most or all of the compliance demonstration evidence provided by the applicant. The applicant has the responsibility to ensure all compliance evidence is available to DASA.

Establishing arrangements for continued compliance

11.2.1.44 Continued (Design) aerodrome compliance encompasses all tasks, to be carried-out to verify that the conditions under which an aerodrome certificate has been granted, continue to be fulfilled throughout its period of validity. Arrangements that enable continued aerodrome compliance are an integral part of aerodrome certification. DASA must be assured that the aerodrome will continue to comply with the aerodrome certification basis and that the safe design of the aerodrome will be retained through the service life of the Aerodrome to issue and maintain certification.

11.2.1.45 Aerodromes can have a long service life, and changes are often made to the aerodrome design, construction and operation during that service life. Furthermore, the original design and/or construction of the aerodrome may include latent defects, not evident at the time of original certification. Arrangements to support continued aerodrome compliance with the aerodrome certification basis is essential. The following systems and procedures are a minimum to be implemented to support continued compliance:

1. A system to retain, and retention of all relevant design information, drawings and test reports; including inspection records for the aerodrome.

2. A system and procedures to capture and manage the configuration of the aerodrome design.

3. A system and processes to collect, investigate and analyse reports of and information related to failures, malfunctions, defects or other occurrences which might adversely affect safe operation of the aerodrome, and to implement corrective action if warranted.

11.2.1.46 For initial certification, the applicant is to establish and provide evidence of these systems and procedures. These arrangements will then be implemented and monitored by the AD OPR in service.

11.2.1.47 DASA will review, on a non-exhaustive basis, the information and procedures provided for continued aerodrome compliance arrangements amongst other things before issuing an aerodrome certificate. Furthermore, DASA may review any non-compliance, occurrences or design defects communicated by the applicant and/or the AD OPR for the potential to affect the certification status and whether the actions taken to maintain support to safe flight operations are credible and defensible.

11.2.1.48 A record of the documents and information that is provided for supporting continued safe operations can be captured in the Aerodrome Certification Basis Template. The template and guide for use of the template can be found on the DASA website.

Establishing arrangements for continuing safe operations

11.2.1.49 An Aerodrome Operator must ensure that, at any time in its operating life, an aerodrome condition supports safe flight operations. The design information that enables the AD OPR to execute the continuing function is an integral part of aerodrome certification. DASA must be assured that the AD OPR has sufficient information to ensure that the conditions for safe flight operation are met to issue and maintain certification. An applicant for aerodrome certification must provide (amongst other things) the design information and procedures in order to enable the AD OPR to ensure the

Superseded

continuing safe flight operations at the Aerodrome. The following information is the minimum required to be provided:

1. Documents that describe specific scheduled maintenance task and their frequency of completion

2. Descriptive data and instructions that enable inspections, processes and procedures necessary to keep the aerodrome in a condition for safe flight operation

11.2.1.50 The AD OPR will use this information to develop and conduct maintenance and inspection processes and procedures to ensure that the aerodrome is always in a condition to support safe flight operations.

11.2.1.51 DASA will review, on a non-exhaustive basis, the information and procedures associated with continuing safe operation of the aerodrome before issuing an aerodrome certificate. Upon becoming aware of any non-compliance, the applicant and/or the AD OPR should bring this to the attention of DASA as it has the potential to affect the certification status.

Application for an Aerodrome Certificate

11.2.1.52 On completion of all compliance demonstration, including approval of all MACRIs, the applicant should start completing the application form for an Aerodrome Certificate. An application to DASA for an aerodrome certificate should use DASA Form – Application for Aerodrome Certificate. Submit the form, along with the supporting documentation, via the DASA Aerodromes Group Mailbox for approval.

11.2.1.53 Aerodrome Continued Compliance and Continuing Safe Operation are also integral parts of Aerodrome Initial Certification. For issue of an Aerodrome Certificate by the DASA, the applicant must (amongst other things) implement arrangements to support continued aerodrome compliance with the CB and provide design information to support the continuing safe operation of the Aerodrome. Before an application is made these aspects should be completed.

11.2.2 Arrangements for maintaining aerodrome certification

Aerodrome design changes

11.2.2.1 Any change to the design, construction or operations of an aerodrome, that has appreciable effect on the safety of flight operations or changes the aerodrome configuration so that it deviates from the DASA agreed CB, invalidates the aerodrome certificate and therefore, must be presented to DASA for re-certification. The purpose of the re-certification process is to assure that the aerodrome continues to be subject to engineering rigour and that the aerodrome remains in a condition that supports safe-flight operations over its service life.

11.2.2.2 Approval of all design changes follows the same principles of certification of a new aerodrome. For all changes, including changes to the Operating intent that affect the design, the certification basis of the change must be established, the means of compliance determined and compliance with the certification basis demonstrated and declared. Alteration of any design data covered by the Aerodrome Certificate and used for Aerodrome Continued Compliance or authorised data for completing Aerodrome continuing compliance also requires a design change approval.

11.2.2.3 Changes that have no appreciable effect on the safety of flight operations do not require presentation to DASA. Any change which changes the agreed CB requires DASA approval. The

Superseded

expectation is that an AD OPR will use professional judgement in determining whether a design change has an 'appreciable' effect on safety, and when in doubt should consult DASA. Determinations for these changes must be available and may be subject to DASA review during oversight activities. The AD OPR is expected to apply the same rigour / standard in implementing those design changes without an appreciable effect on safety of flight, as they would for those changes when they apply to DASA. That is, they should comprehensively complete all steps of the certification process, as applicable, without needing to submit the application to DASA.

11.2.2.4 DASA will agree to CP and approve CB requirements for those changes submitted to DASA, inspect selected compliance evidence, approve all tailoring of requirements and approve all applications for changes. The applicant is encouraged to consult the DASA if there is any doubt regarding whether a change requires re-certification.

11.2.2.5 For any change, the applicant should discuss the content of the CP with DASA until both parties are satisfied, then submit a simplified CP to seek agreement from DASA.

11.2.2.6 An application for DASA's certification for an aerodrome is to be made by writing to DASA. The application should include reference to all information required to be developed by the CP. The Application for a change to the aerodrome certificate can be made using the Application for Aerodrome Certificate.

Annex:

(a) Aerodrome Design Requirements

Superseded

Aerodrome design requirements

(a) For Defence aerodromes, the DASA is responsible for establishing the initial safety requirements. These aviation safety requirements are prescribed within Section 6 of DASA's Defence Aviation Safety Design Requirements Manual (DASDRM) and are to be used when designing Defence certified aerodromes.

(b) DASA will identify a primary design standard, which represents international or domestic 'good practice' for aerodrome design and is an integrated requirement set, internally consistent and kept up-to-date by the sponsoring authority. The DASDRM aerodrome requirements leverage heavily, where possible, on a primary design standard that has been identified as domestic or international 'good practice' for aerodrome design, are an integrated requirement set, internally consistent and kept up-to-date by the sponsoring authority. These primary standards provide a sound foundation for aerodrome design, however due to Defences unique military role and environment, the DASDRM adapts the primary design standard through supplementation or tailoring. This may be needed where the primary design standard:

1. is silent on specific design elements needed for Defence aerodromes, such as military-specific capability requirements;
2. does include requirements for a particular design element, but Defence experience has shown it needs to be varied for the Defence operational context; and/or
3. is not entirely compatible with mandatory Australian legislative design requirements, for example electrical wiring.

(c) The DASA prescribe design requirements in support of safe flight operations. Non-aviation safety-related design requirements necessary for Defence capability, standardisation and interoperability with other defence forces are not included.

Superseded

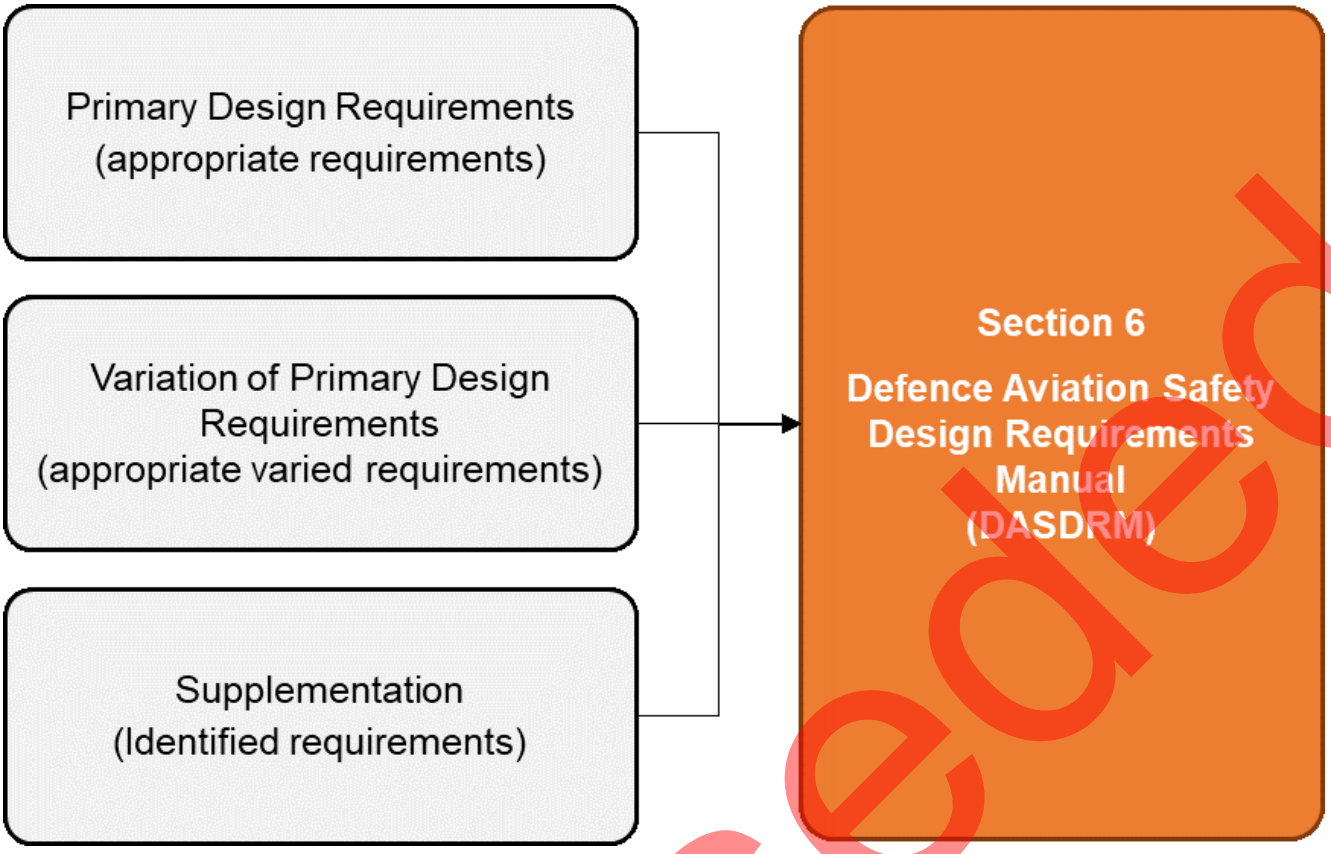


Figure 1: Defence Aviation Safety Design Requirements Manual (DASDRM)

(a) The DASDRM design requirements provide the starting point for developing the aerodrome certification basis – the requirements for which the aerodrome is to comply with to achieve certification. The DASDRM aims to cater for most Defence capability needs, although supplementation or tailoring may be needed for niche capabilities on an aerodrome.

(b) Aerodrome design requirements are identified in Defence Aviation Safety Design Requirements Manual DASDRM), Section 6 as follows:

Aerodrome Type	Applicable DASDRM Chapter	Primary (Aerodrome) Design Standard
Land based aerodromes	Section 6, Chapter 2	Civil Aviation Safety Authority (CASA) Part 139 (Aerodromes) Manual of Standards 2019 (Part 139 MOS) (September 2019), including the MOS Part 139H - Standards Applicable to the Provision of

Superseded

Aerodrome Type	Applicable DASDRM Chapter	Primary (Aerodrome) Design Standard
		Aerodrome Rescue and Fire Fighting Services (MOS Part 139H) (January 2005).
Land based heliports	Section 6, Chapter 3	International Civil Aviation Organisation (ICAO) Annex 14 Aerodromes Volume 2 Heliports (July 2020); and Unified Facility Criteria 3-260-01 Airfield And Heliport Planning And Design (to provide necessary militarisation)
Shipborne heliports	Section 6, Chapter 4	Australian Defence Force Maritime Materiel Requirements Set - DEF (AUST) 5000 - Volume 11 Ship Aviation Requirements (November 2017) for the Royal Australian Navy (RAN).

Table 1: Aerodrome Requirements as per DASDRM

(f) Systems and functions covered by the design requirements include:

1. physical characteristics of movement facilities
2. aircraft arresting systems, and recovery assist systems for shipborne heliports
3. obstacle restrictions and limitations

Superseded

4. visual aids provided by aerodrome markings, markers, signals, wind direction indicators, and so on

5. visual aids provided by aerodrome lighting

6. Communication, Navigation, Surveillance (CNS) and Meteorological (MET) facilities

7. earthing points

8. aircraft tie-down facilities

9. radio communication facilities

10. Aerodrome Rescue and Firefighting (ARFF) requirements.

(g) DASA prescribes design requirements for aerodrome systems and functions that are necessary to support safe flight at Defence aerodromes. The design requirements are within the DASDRM Section 6.

(h) Design requirements are separately prescribed for Defence aerodromes primarily used for fixed wing operations, land based heliports and shipborne heliports. DASA provides advice on interpreting the design requirements.

Superseded

12. Air Navigation Service Providers*

Superseded

13. Independent Reviews of Aviation Safety

13.1 Introduction

13.1.1 Joint Directive 21/2021 – *The Defence Aviation Safety Framework* prescribes the requirement, amongst other elements, for the establishment of a Defence Aviation Safety Program (DASP) within the Defence Aviation Safety Framework (DASF).

(a) The defined elements of the DASF are:

1. an individual accountable to the Defence diarchy for safety of Defence Aviation, namely the Defence Aviation Authority (Defence AA)
2. a Military Aviation Authority (MAA) within Defence aligned to ICAO constructs known as the Defence Aviation Safety Authority (DASA)
3. an ongoing program of work that assures Defence Aviation Safety, known as the Defence Aviation Safety Program
4. a published set of Defence Aviation Safety Regulations (DASR) that apply to the Defence Aviation system
5. an accident and incident investigative capability, independent of our Australian ICAO State (civil) aviation accident and incident investigative body.

13.1.2 In support of DASP oversight activities, the Defence AA convenes independent boards of review to examine, and make recommendations on, the safety of Defence Aviation activities. Otherwise known as Airworthiness Boards (AwB), these boards complement—but do not replicate—the regulatory and investigative functions of DASA. Importantly, they remain independent of Command and the broader Defence Aviation enterprise and report their findings and recommendations direct to the Defence AA.

13.1.3 In complementing DASA, the boards aim to improve aviation safety by reviewing the *system of systems* that supports and enables the reviewed aircraft platform or support system. Further, Airworthiness Boards assist in identifying strategic trends that may lead to one or more systems developing an unsafe condition over time. The majority of the AwB effort is apportioned to the review of extant capabilities in service.

13.1.4 Airworthiness Boards also support the process of introducing new aviation capabilities into Defence, namely Introduction-into-Service (IIS) AwBs. IIS AwBs analyse the proposed capability through the same *system of systems* lens and assess its readiness to operate and sustain through the initial period of service, after which the independent review transitions to an in-service AwB. The role of the MAA regulator in the IIS process is to assess applicant submissions for the issue of DASA Authorisations when the applicant is both meeting compliance against the regulations and meeting conformance to policy. Authorisations come in the form of certificates for products and approvals for organisations and span initial airworthiness, continuing airworthiness, flight operations and other operational approvals as necessary. The AwB will review the issuance of such Authorisations as evidence of system maturity and robustness that will form the basis of confidence in the system reported to the Defence AA. It is important to understand that the AwBs are separate to the DASA regulating function.

Superseded

13.1.5 The members chosen to conduct AwBs are senior ADF reserve officers with rich backgrounds in operational and technical disciplines, vast experience in operations, command, training, acquisition and sustainment who are able to draw on their experience to identify initial deviations or clear deficiencies that have the potential to lead to an unsafe system. Notably, they are not necessarily regulatory experts. Regulatory experts from DASA support the Board Members to interpret and understand the application of the DASR during AwBs. For the regulated community, it is important to understand this principle and the separation of roles and responsibilities within the DASP.

13.1.6 The Defence AA personally selects Board Members as trusted agents to report directly on elements of the system that are deficient or trending towards an unsafe condition. In that respect, they are able to make recommendations or identify issues with the MAA itself if they consider it necessary to do so. For administrative purposes, the Board Members are managed under a discrete part of HQ DASA, namely Aviation Safety Review within HQ DASA. A supporting staff team provided by HQ DASA directly support the Board Members in the execution of their duties. These support staff are not part of any regulatory directorate and remain at arm's length from regulatory processes.

13.2 Format

13.2.1 To adequately gain an insight into all aspects of aviation safety under consideration for a specific platform, the conduct of independent boards of review (commonly referred to as Airworthiness Boards) is divided into four distinct phases, namely:

1. Pre-board and Preparation
2. Site Visit
3. Board Conduct
4. Post-board and Reporting.

13.2.2 **Pre-board and Preparation.** The Pre-board and Preparation will vary dependent on whether the board is an in-service board or related to the introduction into service of a new Defence Aviation capability. The board consists of an operational member and a technical member at the O–7/O–8 level, with a single DASA O–4 Aviation Safety Review team Platform Coordinator supporting administration and an O–5/O–6 member as accountable coordinator/master of ceremonies.

13.2.3 For the case of an in-service board, the process is structured around the ongoing continuum of independent review that a Defence aviation capability has been subject to since its introduction. This process of review delivers a continuous narrative surrounding the Aviation Safety health of a capability, from a wide range of enabling functions including operations, initial and continued airworthiness, continuing airworthiness, logistic support, medical support and external supporting elements, which constitute the elements of fundamental inputs to capability.

13.2.4 The performance/compliance/conformance against the respective enabling functions are reported to the board using a series of checklists (reporting tools) that are authored by accountable parties[1] within those enabling functions. Included in this suite of inputs is a report of regulatory compliance and investigative reporting provided by DASA as the Military Aviation Authority. In isolation, the reports may identify weaknesses; as a sum of inputs, the reports will aggregate to provide a holistic picture. The reports also provide an indication of trends, positive or negative, during the review period. The collation of checklists/reports assists board members to identify areas of weakness and lines of inquiry to interrogate during the Site Visit and Board Conduct phases.

Superseded

13.2.5 To assist that process, DASA support staff will provide a subjective assessment/summary of the reporting, weighed up against previous reports for Board Member consideration. Until the collation of the reports, the board members will focus on historical reporting to build a picture of the capability. To assist, board members usually sit on the board of the same platform/system over consecutive review periods and changes to members are planned with a stagger of operational and technical members to ensure continuity.

13.2.6 For the case of an Introduction Into Service (IIS) board, the focus is slightly different as the capability is starting from scratch. In this case, the assigned Platform Coordinator and board members are far more involved in the process from the outset. The focus in this case is to understand how the capability has evolved from a project standpoint and to understand how it will fit into the force in being; moreover, how the introduction of a new capability will impact the broader aviation system. In this case, the board members conduct regular engagement with stakeholders up to 12 months in advance of planned In Service Date (ISD), pursuant to the relevant Stakeholder Engagement Plan. This enables the board members to provide periodic feedback, through to the formal Board Conduct phase, on the maturity of products that provides satisfaction of a supportable and sustainable system.

13.2.7 **Site Visit.** The Site Visit, conducted just prior to a board, is a critical part of the board process. It provides an opportunity for direct engagement with key stakeholders at the 'coal face' across all domains along with gaining a first-hand appreciation (through sentiment and visual cues) of the status of the capability. This is the prime opportunity to engage face-to-face with junior leadership, aircraft operators, maintenance and support staff and Industry to discuss topics in more detail than may be possible through the conduct of the formal board. From the pre-board research conducted, the board members will shape the visit to deliberately target areas of concern or observe areas of innovation that may be perceived to be at higher risk.

13.2.8 **Board Conduct.** The Board Conduct phase is the most formal part of the board process. This activity is formally recorded (both audio and written records) and runs in accordance with a set agenda in a methodical manner.

13.2.9 The board is normally conducted in a single day to minimise disruption to execution of business by the capability under review. For in-service boards, given the span and depth of information that is collated during the reporting period, it is possible that the conduct of the board could require an entire day. For less-complex capabilities, the Board Conduct process may only require a portion of the day. IIS Boards, given the continuous and regular engagement between board members and key stakeholders, are usually of reduced length and abbreviated in nature.

13.2.10 All Board Conduct activities commence with a short pre-board meeting (nominally 30 minutes) typically involving: the Board Members, MAO-AM, Senior CASG representative and the DASA senior representative, facilitated/coordinated by the O–5/O–6 accountable coordinator. This is an opportunity for the board members to announce their intent regarding the theme and key focus points of the board prior to its commencement.

13.2.11 The board itself is normally conducted at a large conference table with board members occupying the head of the table and representatives of the MAO in order of seniority down one side and the in-service agency (including Industry representation) down the other. Personnel with an interest, but not invited members, are normally seated behind the primary attendees where space allows.

13.2.12 The board members generally steer the discussion in accordance with their pre-determined lines of enquiry, but aligning to the agenda more generally. During the execution of the agenda the

Superseded

board members may point out issues of concern or notable findings that they record as Concerns, Notes and Observations.

13.2.13 At the conclusion of the board, another short meeting (nominally 30 minutes) with the same group detailed at para 10 is conducted. At this meeting, the principals discuss the Concerns, Notes and Observations that have arisen from the conduct of the board, along with any Airworthiness Board Corrective Action Requests (ACARs) that they intend to recommend to the Defence AA. The board members at that time may provide advice of their recommended review period before next board or reserve that advice for release in the Airworthiness Board Report (ABR). At the conclusion of this meeting, they return to the main forum to reiterate the same messages to the broader audience for their awareness.

13.2.14 **Post-board and Reporting.** From the minutes taken during the board, the ABR is drafted by the board members, assisted by the Platform Coordinator. Depending on the complexity of issues that arise, this process can take some time and MAOs should not be concerned nor align their schedules to any expected timeframe. Concurrent with this activity, any potential ACARs are drafted for recommendation/submission to the Defence AA.

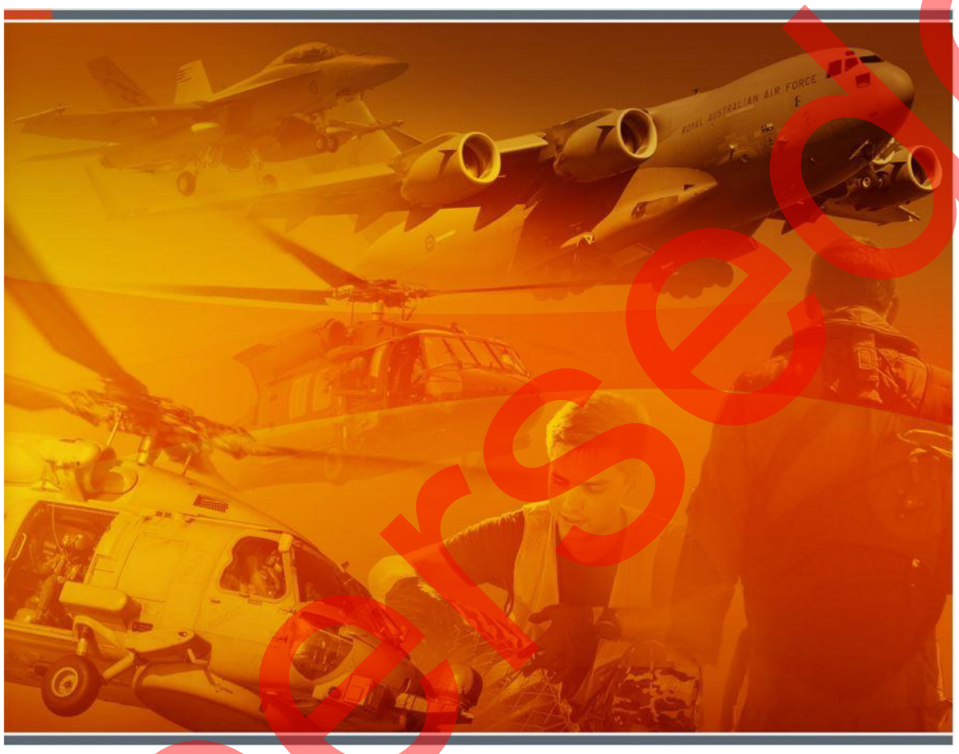
13.2.15 Following release, the ABR is forwarded to the Office of the Chief of Air Force for attention of the Defence AA, along with any ACARs. The ABR will also include a recommended review period, which will inform scheduling of the next board. The Defence AA will read and make commentary against the report, seeking additional clarity or providing direction as required. Concurrent with this, the Environmental Commander of the capability under review is required to provide a response of no more than three pages to address any ACARs and Concerns raised by the board, with initial plans for remediation if possible. Environmental Commander responses are considered by the Defence AA separate to the ABR.

13.2.16 The post-board process does not stop following final sign-off and acceptance of responses. The Platform Coordinator within the DASA Aviation Safety Review team continues to monitor remediation actions against any ACARs to ensure progress is maintained pursuant to the remediation plan provided by the Environmental Commander. This monitoring continues until all associated staff work is completed and a logical closure of the ACAR is realised. Collective ACAR status is reported to the Defence AA quarterly and is formally reported biannually to the Defence Aviation Safety Board (DASB).

Superseded

Australian Government
Department of Defence
Defence Aviation Safety Authority

Defence Aviation Safety Design Requirements Manual



Original Date of Issue: 30 October 15

Date of Current Issue: 27 February 25

Sponsor: Director of Initial Airworthiness - DASA

Defending Australia and its National Interests
www.defence.gov.au

Superseded

SECTION 1 - APPLICATION OF DEFENCE AVIATION SAFETY DESIGN REQUIREMENTS

CHAPTER 1 - PURPOSE, CONTENT AND STRUCTURE OF THE DEFENCE AVIATION SAFETY DESIGN REQUIREMENTS MANUAL

PURPOSE, CONTENT AND STRUCTURE OF THE DEFENCE AVIATION SAFETY DESIGN REQUIREMENTS MANUAL

INTRODUCTION

1.1 Joint Directive 21/2021 requires the Defence Aviation Safety Authority (hereinafter referred to as the Authority) to establish a Defence Aviation Safety Program which, inter alia, includes 'establishing and certifying the initial safety requirements and standards for Defence … aviation platforms/systems'. Inherent in this responsibility is the requirement for the Authority to prescribe minimum requirements for the design of Defence aircraft, engines, propellers and other aircraft-related equipment. The Defence Aviation Safety Program Manual Volume 1 requires the Authority to 'issue standards, inclusive of airworthiness codes, as required for the implementation of the DASR'. The Authority's repository for these 'standards and airworthiness codes' with respect to aircraft design for Defence aviation platforms and systems, also known as airworthiness design requirements, is the Defence Aviation Safety Design Requirements Manual (DASDRM).

1.2 This chapter of the DASDRM:

(a) describes the purpose and scope of the manual,

(b) explains the approach adopted by the Authority for prescribing airworthiness design requirements, and

(c) describes the structure of the manual.

PURPOSE AND SCOPE OF THE DASDRM

1.3 The DASDRM prescribes design requirements for aircraft systems and functions that are necessary to achieve safe flight in Defence's proposed configuration, role and operating environment. It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement. Airworthiness requirements for crewed aircraft are presented in Sections 2 and 3 of this manual, while Uncrewed Aircraft Systems (UAS) are covered in Section 4.

1.4 The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation. Defence aircraft must therefore present a safe work environment for aircrew and passengers, and the airworthiness design requirements in this manual make a substantial contribution to this aim. By its nature, however, the concept of 'airworthiness' has a primary focus on safe flight. Consequently, airworthiness design requirements

Superseded

require supplementation if Defence is to fully meet its WHS Legislation obligations. Section 1, Chapter 2 of this manual expands on this important concept.

1.5 Similarly, capability and interoperability is not a specific consideration when establishing that an aircraft is capable of safe flight. However, robust design for capability and interoperability contributes to mission success, and therefore the safety of aircrew. Consequently, while capability and interoperability design requirements are not a primary focus of the DASDRM, design requirements that support capability and interoperability outcomes are included where appropriate. Section 1, Chapter 4 describes how capability and interoperability design requirements are incorporated into the DASDRM.

1.6 Finally, while the DASDRM focuses primarily on aircraft, it recognises that some off-aircraft systems (eg Mission Planning Systems, Health and Usage Monitoring Systems and aerodrome installations) can have a direct and substantial impact on safe flight. While these ground based systems clearly are not within the scope of airworthiness, they are relevant to the broader context of aviation safety and the Authority may therefore elect to prescribe relevant design requirements. These requirements are presented in Section 5 of the DASDRM for aviation support systems and Section 6 for aerodromes.

Design requirements and design standards

1.7 This chapter, and the remainder of the DASDRM, refers to both 'design requirements' and 'design standards', which may appear to the reader to be interchangeable. This is often, but not always, the case. The latter specifically refers to a standard published by a civilian or military standards body, for example a US MIL STD or an RTCA standard. Airworthiness design requirements, on the other hand, define the safety outcome being pursued. This can be achieved via a worded requirement (eg "PVC wiring must not be used in Defence aircraft") or via reference to a design standard.

PRESCRIBING AIRWORTHINESS DESIGN REQUIREMENTS

1.8 The Authority employs three foundational principles when prescribing airworthiness design requirements for Defence aircraft:

(a) the Authority recognises the airworthiness design requirements prescribed by several civil and military National/Military Airworthiness Authorities (NAAs/MAAs) as providing a sound foundation for the safe design of Defence aircraft;

(b) the Authority may prescribe supplementation to these airworthiness design requirements, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment; and

(c) the Authority requires the conduct of a System Safety Program, to provide a robust means for identifying and analysing aircraft hazards during the design process, and for eliminating or minimising the resultant risks so far as is reasonably practicable.

1.9 These three foundational principles are examined in the following sections.

Superseded

1.10 Many NAAs/MAAs prescribe airworthiness design requirements for achieving safe flight through aircraft design (DASR 21 refers to these airworthiness design requirements as 'Airworthiness Codes'). An Airworthiness Code is a complete and consistent set of airworthiness design requirements that define those attributes of aircraft systems or equipment that underpin safe flight. Airworthiness design requirements are usually prescribed by civil NAAs based on aircraft types. For example, both the USA Federal Aviation Administration (FAA) and the European Aviation Safety Agency (EASA) prescribe separate suites of airworthiness design requirements for light and heavy fixed wing aircraft, and light and heavy rotorcraft.

1.11 The development and maintenance of an Airworthiness Code is a substantial undertaking. Rather than define a Defence-unique Airworthiness Code, the Authority has elected to recognise the suite(s) of airworthiness design requirements (ie Airworthiness Codes) prescribed by several other NAAs and MAAs that have been demonstrated through extensive operating history to achieve safe flight, and then prescribe supplementation as required. The Authority recognised 'Airworthiness Codes' are described in Section 1 Chapter 3 of this manual.

Supplementation of NAA Airworthiness Design Requirements

1.12 The Authority recognised Airworthiness Codes will inevitably require supplementation to account for:

(a) Defence's unique Configuration, Role and/or operating Environment (CRE);

(b) deficiencies in the level of safety provided by the airworthiness design requirements prescribed in the Code, detected by the Authority through local research or experience (eg investigations into aircraft incidents); or

(c) intentional ambiguities within the airworthiness design requirements, where it is assumed that tailoring will be required to meet the needs of the specific application.

1.13 Not all elements of aircraft design covered in Authority recognised Airworthiness Codes will require supplementation. Where supplementation or tailoring of an Airworthiness Code is required, the airworthiness design requirements prescribed by the Authority are contained in this manual. The expectation is that these airworthiness design requirements will be applied in a practical and pragmatic manner. To support their pragmatic implementation, the Authority has classified each airworthiness design requirement as either 'Essential' or 'Recommended'.

1.14 **Essential and Recommended airworthiness design requirements.** The Authority classifies each airworthiness design requirement as either Essential or Recommended, using the following criteria:

(a) **Essential -** an Essential airworthiness design requirement is one where non-compliance would result in a marked reduction in the level of safety afforded by the design. Essential design requirements may also be defined to satisfy legislation, and Defence policy and/or operational regulation requirements.

(b) **Recommended -** a Recommended airworthiness design requirement represents emerging aviation industry 'good practice' that is not yet widely accepted/implemented, or presents an opportunity to increase the level of safety afforded by the design (usually above that provided in Airworthiness Codes).

Superseded

1.15 While Essential airworthiness design requirements define the level of safety that must be achieved by a design, they are not immutable. The Authority, in consultation with the relevant capability manager where applicable, may approve an alternative airworthiness design requirement in the following circumstances:

(a) where analysis confirms the alternative design requirement achieves an equivalent level of safety;

(b) where analysis shows the alternative design requirement, supplemented by operational risk treatments, should achieve an equivalent level of safety; or

(c) where enforcing the Essential design requirement would have a marked negative effect on capability or cost, and an alternative (but less safe) design requirement is in Defence's best interests.

1.16 On occasion the Authority may, in consultation with the capability manager, agree to an alternative design standard that does not satisfy the Authority agreed safety criteria, where meeting the prescribed standard would have a pronounced impact on Defence capability and is not in Defence's best interest. In these circumstances, a tailored design standard could be agreed to contextualise the level of safety afforded by the design for the military role and operating environment of the aircraft. Any proposed tailoring of design standards by an applicant for type certification and/or design approval from the Authority, which results in changes to agreed safety criteria, must be supported by documented rationale that includes:

(a) the capability manager's confirmation that a clear (well-defined) and documented capability imperative for the proposed tailoring exists;

(b) the applicant's confirmation that compliance with the prescribed standard impedes that capability imperative;

(c) the applicant's characterisation of the delta between the prescribed standard and the tailored standard;

(d) the applicant's, with the assistance of the capability manager (or delegate), characterisation of the risk due to this delta; and

(e) the capability manager's (or delegate's) formal conclusion that the tailored safety criteria presents a credible and defensible level of safety for that Defence aircraft, contextualised for ADF operations.

1.17 Once the preceding outcomes have been confirmed, a Military Certification Review Item (MCRI) will be raised by the applicant to reflect the agreed tailoring including any essential risk controls to achieve the defined level of safety.

1.18 Given the nature of Recommended design requirements, their adoption is not mandated by the Authority. Nevertheless, the recommended requirements may assist duty holders to satisfy obligations under WHS legislation for eliminating or minimising risk SFARP. Consequently, the 'designer', in conjunction with the 'sponsor'[1] as a shared duty holder, should determine if adoption of a recommended requirement is reasonably practicable by assessing the improvement in the level of safety afforded by the recommended design requirement against the likely cost(s) of implementation.

Superseded

1.19 Compliance with design standards is the principal means by which safe design of an aircraft is achieved. However, in isolation, a standards-based approach may not provide a complete basis for Type Certification of an aircraft. After all, many standards are inherently stove-piped, and therefore further analytical effort is required to identify and control system-level hazards. Further, standards are often written with 'vanilla' applications in mind; novel aircraft design features are likely to pose novel hazards, which are not catered for within the standard.

1.20 System Safety is an engineering discipline that embraces safety as a core aspect of any given system design (or design change). System safety programs employ a suite of engineering tools and techniques to identify and analyse aircraft hazards during the design process, and provide a management framework to evaluate and control the resultant risks. When applied well, a system safety program is an essential adjunct to a standards-based design approach.

1.21 Formal system safety programs are required for all Defence aircraft acquisitions and Major changes to a type design. The Authority's requirements for System Safety programs are presented in Section 2 Chapter 2 of this manual.

MANUAL STRUCTURE

1.22 This manual comprises the following six sections:

(a) **Section 1 – Application of Airworthiness Design Requirements.** This section defines the purpose and scope of the DASDRM and defines the Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the design of Defence aircraft. It also describes the extent to which airworthiness design requirements contribute to Defence meeting its WHS Legislation obligations. Finally, Section 1 describes the application of capability and interoperability standards to aircraft designs.

(b) **Section 2 – Integrated Design Requirements.** This section prescribes airworthiness design requirements for those engineering disciplines that pervade most aspects of aircraft systems design or affect multiple systems such as system safety, electromagnetic environmental effects and crash protection.

(c) **Section 3 – Aircraft System Design Requirements.** This section prescribes airworthiness design requirements for aircraft systems such as communications, navigation, structures (fixed and rotary wing) and propulsion. The only systems included in this section are those where the Authority recognised Airworthiness Codes do not provide satisfactory coverage for Defence aircraft designs.

(d) **Section 4 – Uncrewed Aircraft Design Requirements.** This section prescribes airworthiness design requirements for UAS.

(e) **Section 5 – Aircraft Support Systems.** This section prescribes design requirements for aircraft support systems and ground based equipment, where the systems/equipment have a direct and substantial effect on safe flight, such as aeronautical life support equipment and mission planning systems.

(f) **Section 6 – Aerodrome Design Requirements.** This section prescribes airworthiness design requirements for Defence aerodromes and heliports.

Superseded

Chapter Sponsors

1.23 Each chapter in this manual is sponsored by a relevant DASA directorate, a Delegate of the Safety Authority (DoSA) or a suitable subject matter expert. Annex A lists these sponsors, who are the first point of contact for requests for interpretation or suggestions for improvement.

Annex:

A. DASDRM Chapter Sponsors

Superseded

ANNEX A - DASDRM CHAPTER SPONSORS

DASDRM CHAPTER SPONSORS

(a) Each chapter in this publication is sponsored by a relevant DASA Directorate (or Delegate of the Safety Authority (DoSA)) or Defence subject matter expert. Table 1-A-1 lists these sponsors, who should be the first point of contact for assistance, requests for interpretation or suggestions for amendment.

Table 1–A–1 Chapter Sponsors

Section 1	**Application of Airworthiness Design Requirements**	
Chapter 1	Purpose, Content and Structure of the Defence Aviation Safety Design Requirements Manual	DIA-DASA (DD DTS)
Chapter 2	WHS Legislation and Airworthiness Design Requirements	DIA-DASA (DD DTS)
Chapter 3	Airworthiness Codes	DIA-DASA (DD DTS)
Chapter 4	Design Requirements for Capability and Interoperability	DIA-DASA (DD DTS)
Section 2	**Integrated Design Requirements**	
Chapter 1	Application of Integrated Design Requirements	DIA-DASA (DD DTS)
Chapter 2	System Safety	DIA-DASA (DD DTS)
Chapter 3	Aviation Software	DIA-DASA (DD DTS)
Chapter 4	Electromagnetic Environmental Effects	DIA-DASA (DD DTS)
Chapter 5	Human Factors Engineering	DIA-DASA (DD DTS)
Chapter 6	Crash Protection	DIA-DASA (DD DTS)
Chapter 7	Fire Protection	DIA-DASA (DD DTS)
Chapter 8	Smoke and Fumes Protection	DIA-DASA (DD DTS)
Chapter 9	Equipment Environmental Qualification	DIA-DASA (DD DTS)
Chapter 10	Defence Long Range Operations	DIA-DASA (DD DTS)
Chapter 11	Aircraft/Stores Compatibility	AWE SQN (ASC CVE)
Chapter 12	Cyber Security	DIA-DASA (DD DTS)

Superseded

Section 3	**Aircraft System Design Requirements**	
Chapter 1	Application of System Design Requirements	DIA-DASA (DD DTS)
Chapter 2	Communications Systems	DIA-DASA (DD DTS)
Chapter 3	Flight Recorder and Locating Equipment	DIA-DASA (DD DTS)
Chapter 4	Navigation Systems	DIA-DASA (DD DTS)
Chapter 5	Surveillance and Avoidance Systems	DIA-DASA (DD DTS)
Chapter 6	Oxygen Systems	DIA-DASA (DD DTS)
Chapter 7	Lighting Systems	DIA-DASA (DD DTS)
Chapter 8	Electrical Systems	DIA-DASA (DD DTS)
Chapter 9	Environmental Control Systems	DIA-DASA (DD DTS)
Chapter 10	Air Vehicle Systems (Mechanical)	DAVENG-DASA (DD ASI)
Chapter 11	Aircraft Performance and Handling	AWE SQN (CO)
Chapter 12	Aircraft Structures	DAVENG-DASA (DD ASI)
Chapter 13	Propulsion Systems	DAVENG-DASA (DD P-HSI)
Chapter 14	Airborne Lasers	DIA-DASA (DD DTS)
Chapter 15	Indicating Systems	DIA-DASA (DD DTS)
Section 4	**Uncrewed Aircraft Design Requirements**	
Chapter 1	Application of Design Requirements to Uncrewed Aircraft	DIA-DASA (DD UASCERT)
Chapter 2	Certified Category UAS	DIA-DASA (DD UASCERT)
Chapter 3	Specific Category UAS	DIA-DASA (DD UASCERT)
Section 5	**Aircraft Support Systems**	
Chapter 1	Application of Design Requirements to Aircraft Support Systems	DIA-DASA (DD DTS)
Chapter 2	Aeronautical Life Support Equipment	SRSPO (DSDE ALSE)
Chapter 3	Mission Planning Systems	DIA-DASA (DD DTS)
Chapter 4	Electronic Flight Bags	DIA-DASA (DD DTS)
Chapter 5	Aerial Delivery of Materiel	AMTDU (CENGR)

Superseded

Chapter 6	Role Equipment and Portable Electronic Devices	DIA-DASA (DD DTS)
Chapter 7	Petroleum, Oils, Lubricants and Allied Products	DIA-DASA (DD DTS)
Section 6	**Aerodrome Design Requirements**	
Chapter 1	Application of Design Requirements to Aerodromes	DIA-DASA (DD AHCERT)
Chapter 2	Land-based Aerodromes	DIA-DASA (DD AHCERT)
Chapter 3	Defence Land-based Heliports	DIA-DASA (DD AHCERT)
Chapter 4	Defence Shipborne Heliports	DIA-DASA (DD AHCERT)

Superseded

WHS LEGISLATION AND AIRWORTHINESS DESIGN REQUIREMENTS

INTRODUCTION

2.1 When operating, Defence aircraft can present a hazard to aircrew, other aircraft occupants, and persons near or under the aircraft flight path. While stationary, Defence aircraft can present a hazard to maintenance and other ground personnel. The Australian Work Health and Safety Act and the Work Health and Safety Regulations (collectively, WHS Legislation) apply to Defence aviation, and therefore Defence has a legal obligation to ensure the health and safety of these persons. The design of the Defence aircraft can, in part, contribute to Defence satisfying this legal obligation, for example:

(a) The aircraft design can promote a safe airborne workplace for aircrew and other occupants through:

1. reducing the likelihood of a catastrophic in-flight mishap,
2. improving crash survivability for aircraft occupants,
3. implementing design controls for in-aircraft hazards that might injure aircraft occupants, and
4. implementing design controls for in-aircraft hazards that might affect the future (post-flight) health of aircraft occupants.

(b) The aircraft design can promote the safety of persons near or under the aircraft flight path through:

1. reducing the likelihood of a catastrophic in-flight mishap, and
2. reducing the ground impact energy (mainly relevant to uncrewed aircraft).

(c) The aircraft design can promote the safety of persons in close proximity to a stationary aircraft through:

1. implementing design controls for aircraft hazards that might injure ground personnel,
2. implementing design controls for aircraft hazards that might affect the future health of ground personnel, and
3. incorporating aircraft maintenance instructions that identify reasonably foreseeable hazards to maintenance personnel and present safe maintenance practices.

2.2 Airworthiness, by its nature, focuses primarily on an aircraft's suitability for flight, and consequently airworthiness design requirements have a similar focus. Airworthiness design requirements will therefore make a substantial contribution to those elements in paragraph 2.1 that are directly related to suitability for flight, but a lesser, or perhaps no, contribution to the remainder. For designers to execute their statutory responsibilities under the WHS Act (for example as required under Sections 22 and 24), they must comprehensively understand the contributions and limitations

Superseded

of airworthiness design requirements in ensuring the health and safety of persons affected by Defence aircraft.

2.3 This chapter examines the extent to which Airworthiness Codes, supplemented by the airworthiness design requirements in Sections 2 and 3 of this manual, can contribute to Defence's statutory obligation to ensure the health and safety of persons affected by Defence aircraft. It also suggests how airworthiness design requirements might be supplemented to further discharge this obligation.

THE LIMITATIONS OF AIRWORTHINESS CODES

2.4 Airworthiness Authorities, both civil and military, commonly define 'airworthiness' in terms of an aircraft's suitability for flight. Consequently, the civil and military Airworthiness Codes presented in Section 1 Chapter 3 of this manual focus firmly on achieving safe flight and landing (ie achieving an airworthy aircraft). At face value, this limited scope appears to address only a small subset of the hazards an aircraft could present to the health and safety of occupants. However, this is not necessarily the case. Airworthiness Codes can and do 'incidentally' promote the wider health and safety of aircraft occupants, while aircraft maintenance data can promote the safety of personnel on the ground. This section expands on these concepts, and identifies the health and safety delta that Duty Holders under the WHS Act must address.

Health and safety of aircraft occupants

2.5 The Airworthiness Codes in Section 1 Chapter 3 of this manual, when supplemented by the airworthiness design requirements in Sections 2 and 3, will substantially ensure the risk to occupants due to a catastrophic aircraft failure and subsequent ground impact, is minimised so far as is reasonably practicable. This is because the Codes and Authority prescribed supplementation are regularly reviewed and updated to reflect contemporary aviation industry benchmark requirements. As such, compliance with the associated design standards when coupled with a System Safety program contributes to satisfying a Duty Holder's responsibility to exercise knowledge of risks and ways of eliminating or otherwise minimising those risks.

2.6 Airworthiness Codes also recognise that properly functioning aircrew are an essential contributor to an airworthy aircraft. Consequently, they include design requirements that protect aircrew from a wide range of injuries, such as electric shock, burns, hypoxia, and so on. Fortuitously, design requirements for crash protection also contribute to protecting aircrew from injuries, since they require effective seatbelts (which can also protect from harm due to turbulence), an absence of sharp protrusions that might impede emergency egress (which protects aircrew during normal operations), restraint of items of mass (which also protects against harm due to movement of these items while airborne), and so on. Summarised, modern civil and military Airworthiness Codes make a substantial contribution to Defence's confidence that the risk to aircrew of injury is minimised so far as is reasonably practicable.

2.7 The protection of other aircraft occupants from injury, on the other hand, is less straightforward. In civil Airworthiness Codes, the protection of passengers from injury is still covered, albeit several design requirements are less rigorous for passengers (for example, harness seatbelts are not a requirement for passengers, there are different oxygen supply requirements for passengers, and so on). Despite these minor differences, however, modern civil Airworthiness Codes will normally cater well for the protection of passengers from injury. Military Airworthiness Codes, on the other hand,

Superseded

can be less prescriptive for passengers and more open to tailoring to meet capability requirements, so the protection of passengers from injury is not necessarily well covered.

2.8 Summarised, aircraft meeting the design requirements of this manual provide a substantial contribution to Defence's confidence that the risk of injury to aircrew will satisfy WHS Legislation requirements. Similar confidence is obtained for the risk of injury to passengers where civil Airworthiness Codes are employed, but supplementation may be needed for military Airworthiness Codes.

2.9 Readers will note some equivocation in paragraphs 2.5-8 as to whether aircraft meeting the design requirements in this manual will comprehensively satisfy Defence's statutory obligations to ensure the safety of aircraft occupants during flight. This equivocation is necessary because the Authority-prescribed reputable standards are not the only consideration when concluding the risks inherent in an aircraft design have been minimised so far as is reasonably practicable. Additional considerations are examined in annexes A and B. Furthermore, for a risk to be minimised so far as is reasonably practicable, there must be effective consultation, coordination and cooperation on risks between all concurrent Duty Holders.

2.10 The preceding paragraphs focused on the protection of aircrew and other occupants from injury (ie an immediate ill effect while the aircraft is in operation), because this is the purview of airworthiness. Airworthiness, and therefore Airworthiness Codes, normally will not cover the future ill effects to the health of aircrew and other occupants, for example due to:

(a) chemical hazards (eg carcinogenicity, gradual toxicity, etc);

(b) biological hazards;

(c) physical hazards (eg long-term effects of aircraft vibration);

(d) ergonomic hazards;

(e) personnel radiation hazards;

(f) acoustic hazards; and

(g) other hazards that may have a future ill effect on the health of aircrew and other occupants.

2.11 Consequently, Duty Holders will need to prescribe additional design requirements that specifically address future effects to the health of aircraft occupants. Guidance on this issue is presented later in this chapter.

Health and safety of persons near or under the aircraft flight path

2.12 The design of an aircraft can promote the safety of persons near or under the flight path through reducing the likelihood of a catastrophic in-flight mishap (and consequently ground impact), and reducing the ground impact energy. Neither will be specifically covered in this chapter, since the former is well covered through assuring the safety of aircraft occupants, while the latter is mostly unique to uncrewed aircraft (see Section 4 of this manual).

Superseded

2.13 Stationary aircraft can present a hazard to aircraft maintenance personnel and other personnel in close proximity to the aircraft. The design of an aircraft can promote the health and safety of these people through:

(a) an absence of hazards that might cause injury (eg sharp edges, protrusions, unprotected hot surfaces, etc);

(b) an absence of hazardous materials that might cause future ill effects to health; and

(c) the Authorised Maintenance Data accompanying the aircraft design can identify significant hazards to maintenance personnel and present sensible maintenance practices.

2.14 None of these outcomes is within the scope of 'airworthiness'. Consequently, Duty Holders will need to prescribe additional design requirements that specifically address these issues. Guidance is presented in the next section.

GUIDANCE ON PRESCRIBING ADDITIONAL DESIGN REQUIREMENTS (BEYOND AIRWORTHINESS DESIGN REQUIREMENTS)

2.15 There are many hazards to aircraft occupants and people on the ground that are not within the purview of 'airworthiness'. Consequently, additional design requirements must be prescribed, and analyses completed, if Defence is to meet its statutory obligations for new aircraft. The remainder of this chapter provides guidance to Duty Holders on prescribing additional design requirements, beyond those dedicated to airworthiness, to ensure the health and safety of affected persons.

Health and safety of aircraft occupants

2.16 Paragraph 2.10 of this chapter concluded that airworthiness design requirements do not satisfactorily address the future effects on the health of aircraft occupants. Where Defence is acquiring off-the-shelf aircraft, annex B provides guidance to Duty Holders on how to ensure future health risks are eliminated or otherwise minimised so far as is reasonably practicably. Where Defence is acquiring developmental aircraft, the 'Air Force Work Health and Safety Management System' including relevant best practice standards detailed in the Air Force Safety Manual may be used to derive additional design requirements for the aircraft. Further advice may be obtained from specialist Defence agencies with WHS domain expertise, including:

(a) the Defence Work Health and Safety Branch,

(b) HQAC A9 – Air Force Safety (AFS), and

(c) the Institute of Aviation Medicine (AVMED).

2.17 System Safety and WHS. A common, but potentially incorrect, proposition is that Defence's WHS responsibilities will be satisfied if an aircraft System Safety Program (SSP) has been established. While a SSP can make a positive contribution to achieving an aircraft design that satisfies statutory requirements, it is by no means automatically comprehensive. Positive contributions can include the following:

(a) SSPs should implement an enduring system for recording and managing hazards, which is a statutory requirement.

Superseded

(b) Some SSPs can include tools for identifying hazards to personnel, for example the Operating and Support Hazard Analysis (OSHA) and Health Hazard Analysis (HHA) tasks in MIL-STD-882.

(c) SSPs can impose an 'order of precedence' for treating hazards, and many of these will satisfy the WHS Legislation's 'hierarchy of controls'.

2.18 However, consider the following:

(a) System safety programs will normally assume that hazards are acceptable when their likelihood and/or consequence is sufficiently low, or in some cases where residual risk has been retained at an appropriate level. This approach is quite different to the requirements of the WHS legislation, which expects risks will be eliminated, or if this is not reasonably practicable, then the risk will be minimised so far as is reasonably practicable. Furthermore, this risk minimisation should iteratively continue until the cost of further risk minimisation is grossly disproportionate to the benefits, regardless of the residual 'risk level'.

(b) The usual SSP tools such as OSHA and HHA merely provide a framework and some general guidance for identifying WHS hazards; application of these tools does not inherently result in the identification or effective management of all hazards.

(c) The WHS benchmarks defined in overseas SSP documents (including the MIL-STD-882 OSHA and HHA) are relevant to their local statutory requirements and policies. These will certainly be different to Australian WHS Legislation and Defence WHS policies.

2.19 Summarised, an aircraft SSP can make a contribution to Defence meeting its statutory responsibilities, but only if it has been specifically designed to achieve this.

Health and safety of persons near stationary aircraft

2.20 Paragraphs 2.13-14 of this chapter concluded that stationary aircraft can present hazards to aircraft maintenance personnel and other personnel in close proximity to the aircraft, but these hazards are not addressed by airworthiness design requirements. Paragraph 2.16 presented guidance to Duty Holders for achieving an aircraft design that satisfies statutory obligations, and that guidance is equally relevant here.

2.21 Duty Holders should also produce Authorised Maintenance Data for the aircraft that contributes to the health and safety of maintenance personnel by identifying hazards and promoting safe maintenance practices. This can be particularly complex to achieve, since it requires a holistic assessment of the compatibility of the ICA processes with Defence maintainer training, local maintenance processes, maintenance policy, WHS Legislation, and so on. The information presented in the Air Force Safety Manual may assist Duty Holders in this endeavour.

FURTHER INFORMATION

2.22 As indicated previously in this chapter, airworthiness design requirements help Defence meet its statutory obligations. However, airworthiness design requirements focus primarily on the suitability for flight of an aircraft, whereas aircraft can present many hazards outside of this narrow scope. Consequently, additional design requirements will need to be prescribed. Further guidance on these additions should be sought from Defence's WHS specialist organisations, including the Defence Work Health and Safety Branch and HQAC A9 – Human Performance and Safety.

Superseded

Annexes:

A. Exercising ‘Reasonable Knowledge’ in Aircraft Design

B. Guidance for Defence Duty Holders when Acquiring Off-The-Shelf Aircraft

Superseded

ANNEXES

ANNEX A - EXERCISING 'REASONABLE KNOWLEDGE' IN AIRCRAFT DESIGN

EXERCISING 'REASONABLE KNOWLEDGE' IN AIRCRAFT DESIGN

BACKGROUND

1. A key element of the WHS Legislation is the requirement for risks to be eliminated so far as is reasonably practicable (SFARP) or, where this is not reasonably practicable, for the risks to be minimised SFARP. In aircraft design, eliminating risks is often impractical. Consequently, minimisation of risk so far as is reasonably practicable is often necessary to satisfy Defence's statutory responsibilities.

2. In determining whether a risk control is reasonably practicable the WHS Legislation requires a duty holder to take into account 'what the person concerned knows, or ought reasonably to know, about: (i) the hazard or the risk; and (ii) ways of eliminating or minimising the risk.'[1]

3. Reasonable knowledge (ie what a person ought reasonably to know) of risks can be gained in multiple ways. The Safe Work Australia interpretive guideline, Model Work Health and Safety Act The Meaning of 'Reasonably Practicable', expands the concept of what a person ought reasonably to know (their 'state of knowledge') and includes the following sources of knowledge, among others, that are relevant to designers in the aviation context:

(a) reputable standards;

(b) consulting workers and others in the industry;

(c) industry publications, and scientific and technical literature;

(d) analysing previous incidents; and

(e) relevant WHS Regulations and 'codes of practice'.

4. This annex examines the contribution of each of these sources of knowledge to satisfying a designer's responsibility to exercise reasonable knowledge in aircraft design. This annex does not consider whether the identified sources of reasonable knowledge contribute to, or satisfy, a designer's broader statutory responsibilities with respect to WHS (eg ensuring the health and safety of maintenance personnel) unless directly relevant to aircraft design considerations.

REPUTABLE STANDARDS

5. A major source of knowledge of risks and associated controls in aircraft design is reputable standards. Standards applicable to aircraft design have been iteratively developed over many decades of civil and military aviation experience and represent the current state of knowledge for aircraft designers. Standards, including associated guidance material (eg Advisory Circulars, guidebooks, and so on), that are recognised by National/Military Airworthiness Authorities (NAAs/MAAs) and are employed within an appropriate context, have the potential to constitute 'reputable standards'.

6. The Authority promulgates reputable standards for Defence aircraft design in the DASDRM. The standards are drawn from the following sources, sometimes with supplementation to overcome known deficiencies:[2]

Superseded

(a) standards prescribed by Authority recognised NAAs/MAAs (ie Authority recognised Airworthiness Codes);

(b) standards issued by standards bodies that are widely accepted within civil/military aviation; and/or

(c) standards prescribed by legislation (either Commonwealth or State) that are applicable to Defence aviation.

7. However, it is not sufficient for designers to assume they have exercised reasonable knowledge simply because they have applied a standard extracted from this publication. The remainder of this section is dedicated to helping designers understand how the standards in this publication must be applied if they are to constitute reasonable knowledge.

Context is key

8. When an aircraft standard is created, the authors will inevitably have a particular context in mind. For example, the authors might assume the primary customer is civil aviation, and therefore the standard might be particularly relevant to the flight profiles and operating environments experienced by civil operators. Where Defence operates an aircraft in a more challenging way, it may invalidate some assumptions made by the authors.

9. Consequently, a standard in this publication can only contribute to reasonable knowledge to the extent that the application is relevant to the particular Defence aircraft. While Sections 2 and 3 of this publication provide some guidance on common areas where Defence's operating environment often differs from that assumed in a standard, this is by no means comprehensive. Even minor differences in configuration, role and operating environment (CRE) between the intended or assumed application of a reputable standard and those applicable to the Defence aircraft may reduce the standard's relevance and therefore limit its contribution to reasonable knowledge.

10. Professional judgement and experience is paramount in identifying such deltas. A robust CRE analysis and System Safety Program (SSP) will often assist designers in ensuring that the context adopted by/assumed in the reputable standard is consistent with the Defence context.

11. The following sections provide guidance in applying the standards prescribed in this publication and evaluating the correctness of their context.

PARTICULAR APPLICATIONS OF DASDRM REPUTABLE STANDARDS

12. **New Defence aircraft**. Section 1 describes the approach adopted by the Authority to recognising Airworthiness Codes issued by civil and military Airworthiness Authorities. The Authority has assessed these Codes[3] as providing a sound foundation for the safe design of Defence aircraft, and has supplemented the design requirements in the Codes with additional design requirements where necessary. The DASDRM consequently defines the Authority approved reputable standards for new Defence aircraft certifications.

13. Where a new Defence aircraft design is verified as complying with the reputable standards defined in this publication, a designer could sensibly conclude that potential risks, and ways of eliminating or minimising those risks, have been identified and the risk has therefore been minimised so far as is reasonably practicable. Such a determination should only be made where the designer has also confirmed that the context under which the standards were intended to be applied is consistent with the Defence aircraft context (refer to paragraphs 8 through 10).

Superseded

14. Some Authorities, however, allow the application of standards 'grandfathering' to reduce aircraft design and production costs. Grandfathering permits, in some circumstances, the use of older standards for new designs if the aircraft is based on a previously certified design. The adoption of older standards under this 'grandfathering' approach will not always provide the level of safety afforded by newer standards.

15. Designers cannot automatically assume that grandfathered standards represent 'reputable standards' for Defence aircraft design, since they are knowingly adopting outdated standards. On the other hand, grandfathering of standards is permitted (within limits) by major airworthiness authorities, and has been employed successfully for decades. Consequently, a Defence prohibition on grandfathering would be contrary to common well-established aviation industry practice (refer paragraphs 30 to 42). For a designer to confirm that risks have been minimised so far as is reasonably practicable, the concepts of adopting current reputable standards and confirming the adequacy of grandfathered standards must be merged. Consequently, where a Defence civil-derivative aircraft has the same configuration as their civil equivalent, and operates in a substantially similar role and environment, designers should:

(a) identify the delta between the grandfathered standard and the current version;

(b) establish whether any amended/additional requirements in the current standard would markedly improve the level of safety;[4] and

(c) if so, critically examine whether the cost of adopting the updated standard is grossly disproportionate to the benefit.

16. **Major design changes[5] to Defence aircraft.** Comprehensive application of the standards in this publication to Major changes to an aircraft type design inherently constitutes the application of reputable standards, provided the context of use is appropriate. However, common practice among Authority recognised civil Airworthiness Authorities is to not apply the latest airworthiness design requirements to a major design change where:

(a) the change is not significant (eg the general principles of construction and/or configuration is retained; the assumptions used to originally certify the design remain valid); or

(b) the change does not affect a system, component, equipment or appliance to which the previous iteration of the design requirements was applied; or

(c) implementation of the updated requirements is determined to not materially contribute to the level of safety or would be impractical (ie the application of the updated reputable standard is not reasonably practicable).[6] [7]

17. In these cases, provided the new design still meets the aircraft's type certification basis (TCB), it is accepted as sufficient by most civil airworthiness authorities. This approach is such common practice amongst civil airworthiness authorities, that it can be considered a benchmark for reasonable practice (and therefore reasonable knowledge).

18. Consequently, for Major changes to Defence aircraft type design, the modified aircraft must continue to satisfy the airworthiness design requirements prescribed in the approved aircraft TCB as a minimum. However, more recent versions of airworthiness design requirements should be evaluated to determine whether compliance with the later version would contribute materially to the level of safety afforded by the design and would be practicable to implement[8]. It is the determination of

Superseded

whether an updated standard 'materially contributes to the level of safety' and is practicable to implement that is often the most contentious issue faced by designers.

19. To establish whether an updated standard should be applied to a major change to type design, designers should:

(a) identify the differences between the standard defined in the aircraft's TCB and the updated standard, which define improved safety outcomes;

(b) assess the safety benefit that would be achieved by complying with the updated standard for the Defence aircraft CRE;

(c) identify the costs associated with complying with the updated standard (costs will include delays in incorporation of the change, impact on capability, additional funding, impact on training and so on); and

(d) based on this information, apply professional engineering judgement to determine whether compliance with the updated standard is reasonably practicable.

20. **Minor design changes to Defence aircraft.** Common aviation industry practice is to require that all Minor changes to aircraft designs comply only with the airworthiness standards defined in the aircraft's TCB. That is, there is no requirement to consider the most recent version of standards for Minor changes. The issue is whether these often superseded standards afford a level of safety that would not be materially improved through the application of an updated standard.

21. By definition, minor design changes should have, at most, a minor effect on aircraft safety. Consequently, Airworthiness Authorities accept that it is very unlikely that an updated standard would make a material contribution to aircraft safety. Such an approach is equally relevant to Defence aircraft. Nevertheless, designers should establish whether the standards applicable to a minor design change have been updated and apply normal professional engineering judgement to identify where updated standards should be applied. Note that, while the DASDRM occasionally identifies issues that warrant additional consideration for minor modifications to assist designers in applying professional judgement, the inclusions are by no means comprehensive[9].

22. **Tailoring of DASDRM standards.** Some reputable standards may inherently require tailoring to accommodate a specific aircraft context. Others may permit tailoring of some requirements to suit a particular aircraft role or operating environment. In these cases, a simple reference to the standard in the aircraft TCB is not sufficient to articulate the scope of the reputable standard applied and clarification of the scope and level of tailoring is required. Tailoring of standards may inadvertently remove requirements that are fundamental to the standard being considered a reputable standard. Therefore, designers should ensure that any tailoring of reputable standards does not remove key elements that underpin the level of safety afforded by application of the standard.

23. In some circumstances, the Authority has determined that certain requirements cannot be tailored out or that specified performance levels must be achieved for particular elements of a standard, and has included these requirements in this publication. However, the Authority's evaluation of potential tailoring of standards is not comprehensive and, therefore, additional tailoring may be appropriate depending on the design context. Prior to adopting tailoring of a standard, designers should ensure that the tailoring:

(a) only removes requirements that are not applicable to the Defence aircraft configuration, role and operating environment;

Superseded

(b) does not remove or reduce benchmark performance criteria or characteristics inherent in the standard (ie those upon which the standard relies to achieve the defined level of safety); and

(c) is compatible with the Defence aircraft role and operating environment.

24. Where doubt regarding the suitability of tailoring exists, the Authority should be petitioned for a determination on the proposed tailoring (Section 1 Chapter 1 of this publication provides further guidance).

REPUTABLE STANDARDS NOT INCLUDED IN THE DASDRM

25. Authority prescription of design requirements, which underpin the reputable standards defined in the DASDRM, is based on the following:

(a) a clear understanding of the relevance of the requirement to achieving safe flight for the Defence CRE;

(b) revising the requirement to reflect contemporary knowledge, based on monitoring advances by others (eg NAA/MAA, OEMs) and through local research (eg DSTG); and

(c) interpreting the requirement to assess the adequacy of alternative means of compliance, approve proposed tailoring and characterise risks due to any shortfalls in compliance.

26. In some cases, the Authority will hold the required expertise to prescribe and interpret design requirements in house or can quickly gain the expertise if needed. However, the expertise for some complex design disciplines/technologies is resident elsewhere in Defence; in those cases, the Authority may elect to delegate this responsibility to a particular Defence individual, who will normally be designated as a Standards Delegate of the Safety Authority (DoSA).

27. Occasionally, designers may identify potential 'reputable standards' that the Authority has not yet included in the DASDRM. These 'reputable standards' must be evaluated by a suitable subject matter expert to confirm that their adoption is appropriate for Defence aircraft designs. Where a designer considers that a standard not currently recognised by the Authority warrants inclusion in the Authority defined reputable standards in this manual, the designer should petition the Authority, or relevant Standards DoSA, for approval to use the standard.

RETROSPECTIVE APPLICATION OF UPDATED STANDARDS

28. Changes to reputable standards that occur after an aircraft is introduced into service may identify new ways of eliminating or reducing risks. Such changes could undermine the determination that risks to Defence aircraft safety have been minimised so far as is reasonably practicable.

29. Within the aviation industry, NAAs/MAAs hold broad responsibility for identifying and prescribing any changed reputable standards to which in-service aircraft must comply. Similarly, the Authority monitors changes to reputable standards defined in the DASDRM and evaluates the changes to determine whether their retrospective application to Defence in-service aircraft is warranted. Nevertheless, the actions of the Authority do not absolve designers from determining if retrospective application should be pursued. After all, designers have access to sources of information that are not necessarily available to the Authority, including OEMs, international operators, collaboration forums, and so on. Consequently, designers should monitor changes to reputable standards that are specific to the design they are responsible for, and confirm that retrospectivity of such changes is not reasonably practicable or take action to achieve compliance.

CONSULTING WORKERS AND OTHERS IN THE INDUSTRY

Superseded

30. Designers can gain knowledge of risks in aircraft design through consultation with aircrew and maintenance personnel, or through engagement with aviation industry organisations, aviation domain SMEs and aircraft manufacturers and designers. This section discusses the contribution of such consultation in developing a designer's 'state of knowledge' of risks, and ways of eliminating or reducing those risks, in aircraft design.

CONSULTING AIRCRAFT OPERATORS AND MAINTENANCE PERSONNEL

31. Aircraft operators and maintenance personnel provide designers with insight into risks that may be present in aircraft designs, particularly with regard to human-machine interface and procedural issues. Designers should consult with operators and maintenance personnel when developing Defence aircraft designs, to ensure that such risks are identified and appropriate controls are implemented.

32. Some common System Safety Program tools can assist in this consultation process. For example, the Operating and Support Hazard Analysis (O&SHA) and Health Hazard Analysis (HHA) in MIL STD-882 inherently require consultation with operators and maintainers on personnel injury hazards. Similarly, several system safety tools include a focus on human factors hazards (particularly in relation to the human-machine interface), and consequently drive operator consultation. Finally, forums such as the MIL-STD-882 System Safety Working Group encourage consultation on hazard identification and management between all key stakeholders. Each of these tools and forums can provide a contribution (but rarely a comprehensive solution) to robust operator and maintainer consultation.

IDENTIFYING GOOD PRACTICE

33. While the implementation of risk controls identified in reputable standards is integral to establishing good practice, other aviation industry organisations in both the civil and military aviation domains may have identified and implemented additional risk controls not prescribed within reputable standards for aircraft designs. These additional risk controls, known as 'industry good practice', should be evaluated by designers and implemented where appropriate.

34. To ensure that good practice is part of an engineer's consideration of potential risks and ways of controlling those risks in Defence aircraft design, designers should:

(a) engage with other aviation industry organisations that are responsible for developing similar aircraft designs to identify implemented controls; and

(b) evaluate the context under which the control was implemented to establish whether the control is applicable to the Defence aircraft (ie the control applies to the same risk and in the same context as that of the Defence aircraft design).

CONSULTING THE AIRCRAFT OEM AND OTHER RELEVANT DESIGN AGENCIES

35. OEMs have a comprehensive understanding of their aircraft design and access to relevant design data. OEMs may therefore have additional insight into risks associated with the design, and ways of eliminating or reducing those risks that is not immediately apparent through application of relevant reputable standards. For example, the OEM may have applied a bespoke design requirement to control a risk associated with a novel or unique feature. Defence also engages design agencies (other than aircraft OEMs) to provide engineering support. These design agencies may also have additional insight into risks associated with the design, particularly for the Defence CRE context. Consultation with OEMs and other relevant design agencies during design development is therefore a key component of developing a designer's state of knowledge.

CONSULTING AVIATION DOMAIN SUBJECT MATTER EXPERTS

Superseded

36. Designers may gain knowledge of hazards and associated risk controls through consultation with aviation domain experts such as Defence Science and Technology Group (DSTG), other Defence organisations (for example System Program Offices (SPOs) responsible for common aviation systems), industry experts such as standards bodies and committees, and academia. Where information is gathered from a reputable Defence source such as DSTG or a SPO, designers can consider this information to be a valid contribution to their reasonable knowledge. However, before relying on information gained from other domain SMEs, designers should evaluate the information to establish its validity and applicability before using the information in Defence aircraft design.

CONSULTING DOMAIN EXPERTS THROUGH COURSE PARTICIPATION

37. Many aircraft related courses include content on the identification of risks associated with aircraft design and potential risk controls. For those courses that are delivered by the Authority (including Standards DoSAs), such content can be considered to provide a valid contribution to a designer's body of knowledge.

38. For all other courses, the presenter may include additional content based on 'expert opinion' or experience. Consequently, while designers can consider the content to provide a general contribution to their reasonable knowledge, a designer should apply professional engineering judgement in its application to a particular aircraft hazard or risk.

CONSULTING PROFESSIONAL BODIES

39. Many professional bodies hold substantial domain knowledge either in specific technology related fields or in aviation more broadly and these may be an additional source of reasonable knowledge for designers. Examples include: Engineers Australia (and associated sub-Colleges and Technical Societies), the Royal Aeronautical Society, the Institute of Electrical and Electronics Engineers, and so on.

INDUSTRY PUBLICATIONS AND SCIENTIFIC AND TECHNICAL LITERATURE

40. Knowledge of aircraft design related risks and control measures can be sourced from industry publications and scientific and technical literature, to the extent that it directly relates to aviation and is developed and published by a reputable source. Such knowledge can be categorised as either acceptable at face value or requiring additional evaluation to establish its validity.

41. The following industry publications can be considered to provide a valid source of reasonable knowledge:

(a) generic aircraft OEM standard operating procedures or design guidelines/handbooks;

(b) material safety data sheets (and other approved industry safety data);

(c) technical reports/white papers published by reputable organisations (such as NASA); and

(d) technical reports produced by Government agencies (for example, DST Group or Australian National Audit Office).

42. Other publications may reflect the author's 'opinion' rather than established and verified knowledge and should be treated with caution. While they may inform a designer's body of knowledge, the content should be subjected to professional engineering judgement to confirm the validity of any identified risks and associated controls. Such publications include:

(a) generic reference books related to a particular engineering discipline or element of aircraft design; and

(b) conference proceedings and published scientific papers.

Superseded

ANALYSING PREVIOUS INCIDENTS

43. Accident/incident investigations and their outcomes are integral to informing designers of risks in aircraft design and potential ways of eliminating or controlling those risks. Information related to risks in aircraft design may be sourced from investigations into Defence aircraft accidents/incidents or investigations conducted by external organisations such as NAAs/MAAs or accident investigation bodies (for example the Australian Transport Safety Bureau).

44. **Internal accident/incident investigations.** While design organisations will have an established process for evaluating the outcomes of accident/incident investigations associated with the aircraft they are responsible for, there may be risks identified in other aircraft investigations that are also relevant to their aircraft type. These investigation outcomes provide a readily accessible source of information to add to a designer's body of knowledge of risks and means of controlling those risks in aircraft design.

45. **External accident/incident investigations.** Many NAAs/MAAs and national accident investigation bodies conduct investigations, make recommendations for safety improvements, and make their findings of causal factors and proposed remediation actions public. Some investigations may contain lessons learnt that may form part of the body of knowledge of risks, and ways of eliminating or minimising those risks, available to designers. Designers should maintain an awareness of the accidents/incidents that have occurred in aircraft that are similar (in terms of aircraft type and CRE) to that of the Defence aircraft design.

RELEVANT REGULATIONS AND 'CODES OF PRACTICE'

46. A Code of Practice is approved by the Minister responsible for work health and safety in the applicable jurisdiction and is 'a practical guide to achieve the standards of health and safety required under the model Work Health and Safety Act and model WHS Regulations'.[10] Codes of Practice provide duty holders with guidance on effective ways to manage work health and safety risks. While there are no Codes of Practice specifically applicable and approved for aviation, the 'generic' Codes of Practice issued under the authority of the WHS Legislation may apply to aircraft design[11]. These Codes of Practice should be considered by designers during aircraft design activities.

47. Finally, Australian legislation regarding specific WHS hazards (for example Radiation Protection Standards published by ARPANSA) and associated Defence policy may apply to aircraft design and should be considered by designers during aircraft design activities.

CONCLUSION

48. The application of the principles described in this annex will assist designers to apply an appropriate level of reasonable knowledge to the identification, elimination and minimisation of hazards and associated risks in aircraft design. However, designers must ensure that the knowledge is applicable to the Defence aircraft context and represents contemporary understanding of the hazards and controls for that design. Importantly, reasonable knowledge applied by designers is not static. Any decision that a risk has been minimised so far as is reasonably practicable will always be influenced by the particular circumstance. Changed circumstances include the evolution of standards and other knowledge that supported the original determination that reasonable knowledge had been applied. Consequently, designers should ensure that changes to applicable reputable standards (or other key knowledge sources) are monitored and assessed to ensure that identified hazards and controls remain valid.

Superseded

ANNEX B - GUIDANCE FOR DEFENCE DUTY HOLDERS WHEN ACQUIRING OFF-THE-SHELF AIRCRAFT

GUIDANCE FOR DEFENCE DUTY HOLDERS WHEN ACQUIRING OFF-THE-SHELF AIRCRAFT

1. Airworthiness design requirements are merely one source of constraint placed on aircraft designers. A military-sponsored aircraft design, for example, would mandate personnel safety requirements beyond airworthiness in the procurement specification. A new civilian aircraft, while not subject to such contractual constraints, would probably meet the WHS requirements of its expected main customers as a sensible business decision. Company liability concerns may also promote design practices that reduce risks to aircraft occupants and people on the ground. Consequently, in all likelihood, a new aircraft design will substantially meet Australia's WHS Legislation. The challenge is to identify any deficiencies, recognising that:

(a) WHS benchmarks will inevitably vary between countries

(b) military forces can moderate WHS requirements if they impede capability

(c) aircraft designers will be constrained in providing safe aircraft designs and maintenance instructions by cost and schedule pressures, and knowledge deficits.

2. This section proposes an approach to identifying the extent to which military or civilian off-the-shelf aircraft designs should satisfy Australia's WHS Legislation with respect to promoting the health and safety of aircraft occupants.

Military off-the-shelf aircraft

3. Where a military-specific aircraft is being procured off-the-shelf, information on the design of the aircraft is needed, so that deficiencies against Australia's WHS Legislation can be identified and the risk eliminated or otherwise minimised so far as is reasonably practicable. The following sources of aircraft design information may assist:

(a) the original aircraft procurement specification, if it defines requirements that contribute to personnel health and safety

(b) for aircraft designed under a MIL-STD-882 program, the artefacts produced by the aircraft designer to satisfy the Operating and Support Hazard Analysis (OSHA) and Health Hazard Analysis (HHA) tasks

(c) the aircraft hazard log (or equivalent), if it includes hazards to personnel health and safety as well as airworthiness hazards

(d) documents that define risk retention decisions by the certifying Airworthiness Authority

(e) the elements of the military Airworthiness Code (if employed) that contribute to personnel health and safety

(f) where possible, sourcing information specific to Australia's WHS Legislation from the aircraft designer

(g) a visual inspection of the aircraft, to identify design features that might present a hazard to personnel health and safety.

Civilian off-the-shelf aircraft

Superseded

4. The civil Airworthiness Codes in Section 1 Chapter 3 of this publication will normally cater well for the protection of aircraft occupants from injury. However, they normally will not cover future ill effects to the health of aircraft occupants, for example due to chemical hazards, radiation hazards, and so on. To confirm the aircraft does not risk the future health of aircraft occupants, information specific to Australia's WHS Legislation would need to be sourced direct from the aircraft designer. Further confidence might be gained through identifying countries where the aircraft type is widely operated, and comparing their WHS requirements against Australia's WHS Legislation.

Superseded

AIRWORTHINESS CODES

INTRODUCTION

3.1 To promote safe flight through aircraft design, some National Airworthiness Authorities and Military Airworthiness Authorities (NAAs/MAAs) prescribe airworthiness design requirements. Prescribed airworthiness design requirements are usually documented in an Airworthiness Code (DASR 21 refers) and represent a complete and consistent set of requirements that define those attributes of aircraft systems, or functions, that underpin safe flight.

3.2 As discussed in Section 1 Chapter 1 of this manual, it is not practical for Defence to create and maintain its own Airworthiness Code. Consequently, the Authority has recognised a number of civil and military Airworthiness Codes as providing a sound foundation for the safe design of Defence aircraft.

3.3 This chapter of the DASDRM:

(a) describes the application of Airworthiness Codes

(b) identifies and describes the Authority recognised Airworthiness Codes

(c) describes the approach adopted by the Authority to establishing the acceptability of aircraft designs not developed to an Authority recognised Airworthiness Code.

3.4 Uncrewed aircraft systems (UAS). The approach adopted by the Authority to prescribing UAS airworthiness design requirements is described separately in Section 4 of this manual.

APPLICATION OF AIRWORTHINESS CODES TO DEFENCE AIRCRAFT

3.5 An aircraft developed to an Authority recognised Airworthiness Code should substantially meet the level of safety expected by Defence. While the Authority might prescribe additional design requirements to address known deficiencies in the Airworthiness Code, or to encompass Defence's unique Configuration, Role and operating Environment (CRE), these are not normally substantial additions.

3.6 This section describes the Authority's approach to recognising Airworthiness Codes, and for identifying where supplementation to a Code is needed.

Recognising Airworthiness Codes

3.7 For the Authority to recognise an Airworthiness Code, as a minimum, the Code must:

(a) be prescribed by a recognised NAA/MAA

(b) have demonstrated a sound safety record

(c) prescribe a complete and consistent suite of airworthiness design requirements

Superseded

(d) be supported by associated guidance on how to achieve compliance with the airworthiness design requirements

(e) be accessible, ie published by the NAA/MAA in a consolidated and easily accessed format.

3.8 Where an Airworthiness Code is recognised by the Authority, unless otherwise stated in this manual the recognition automatically refers to the current version of the Code. Earlier versions of an Airworthiness Code may be acceptable to the Authority provided the changes between the earlier version and the current version have been analysed and the effect on safety characterised. Project Offices seeking to acquire Defence aircraft designed to an earlier version of a recognised Airworthiness Code are to petition the Authority for a decision on the acceptability of the earlier version.

Supplementing Recognised Airworthiness Codes

3.9 As mentioned previously, an aircraft developed to an Authority recognised Airworthiness Code should substantially meet the level of safety expected by Defence. However, for a particular aircraft acquisition, the Authority would normally prescribe supplementary airworthiness design requirements, as a result of:

(a) known inadequacies in the Airworthiness Code

(b) novel features included in the proposed design that are not accommodated by the Code

(c) proposed Defence-unique roles and/or operating environments that are outside the scope of the Code, and/or

(d) Defence policies or Australian legislated requirements not being covered by the Code.

3.10 Sections 2 and 3 of this manual present airworthiness design requirements that are commonly needed to supplement Airworthiness Codes. Where supplementation is not commonly required, a corresponding chapter has not been included in this manual. Regardless, the Authority may identify specific areas for deeper evaluation on a case-by-case basis for an aircraft acquisition or design change, and prescribe design requirements in addition to Sections 2 and 3 where warranted.

AUTHORITY RECOGNISED AIRWORTHINESS CODES

3.11 The previous section presented the criteria employed by the Authority for recognising Airworthiness Codes. This section identifies and defines those civil and military Airworthiness Codes that have been recognised by the Authority as providing a sound foundation for the safe design of Defence aircraft.

Federal Aviation Administration

3.12 The United States of America Federal Aviation Administration (FAA) is an Authority recognised civil NAA. The FAA prescribes airworthiness design requirements (commonly referred to as the Federal Aviation Regulations (FARs)) to assure safe aircraft design in the Code of Federal Regulations Title 14 (CFR 14) Aeronautics and Space, Chapter 1 Federal Aviation Administration, Department of Transportation, sub-Chapter C, Aircraft. Sub-Chapter C is further separated into Parts that prescribe specific airworthiness design requirements for an aircraft category or aircraft engines.

Superseded

3.13 Not all of the airworthiness design requirements prescribed in the FAR Parts under sub-Chapter C are applicable to Defence aircraft. Consequently, the Authority has recognised an Airworthiness Code based on the airworthiness design requirements prescribed by the FAA in the following FAR Parts:

(a) Part 23[1] – Airworthiness standards: Normal, utility, acrobatic and commuter category airplanes

(b) Part 25 – Airworthiness standards: Transport category airplanes

(c) Part 26 – Continued airworthiness and safety improvements for transport category airplanes

(d) Part 27 – Airworthiness standards: Normal category rotorcraft

(e) Part 29 – Airworthiness standards: Transport category rotorcraft

(f) Part 33 – Airworthiness standards: Aircraft engines

(g) Part 35 – Airworthiness standards: Propellers.

3.14 The FAA also prescribes minimum equipment and/or systems requirements in sub-Chapter D, Airmen, and sub-Chapter G, Air Carriers and Operators for Compensation or Hire: Certification and Operations, of CFR 14 Chapter 1 for specified operations, and these equipment/system requirements inherently levy airworthiness design requirements. The applicability and suitability, for Defence aircraft, of the airworthiness design requirements levied in the following FAR Parts will be established following determination of the type of operations to be undertaken by the Defence aircraft and the airspace in which these operations will occur:

(a) Part 91 – General Operating and Flight Rules

(b) Part 121 – Operating Requirements: Domestic, Flag and Supplemental Operations

(c) Part 135 – Operating Requirements: Commuter and On-demand Operations and Rules Governing Persons On Board Such Aircraft.

3.15 Accordingly, from Defence's perspective, the FAA's Airworthiness Code effectively consists of airworthiness design requirements from FAR Parts 23, 25, 26, 27, 29, 33 and 35, and those airworthiness design requirements inherently levied by FAR Parts 91, 121 and 135 that are relevant to Defence's proposed operations. This Airworthiness Code is accepted by the Authority as providing an acceptable foundation for the safe design of Defence aircraft. Further detail on the application of FAA prescribed airworthiness design requirements for particular aircraft types, technologies and systems, and operations is contained in the relevant chapters in Sections 2 and 3 of this manual.

European Aviation Safety Agency

3.16 The European Aviation Safety Agency (EASA) is the NAA responsible for conducting civil aircraft Type Certification on behalf of the countries of the European Union. EASA prescribes airworthiness design requirements within Certification Specifications (CSs) promulgated under the authority of Regulation (EC) No 216/2008 of 20/02/2008, Basic Regulation, and Commission Regulation (EU) No 748/2012 of 03/08/2012, Initial Airworthiness. EASA CSs are harmonised with the FAA FAR Parts with respect to aircraft Type Certification. Consequently, EASA CS-23, -25, -27, -29, -E and -P prescribe substantially the same requirements as those within the equivalent FAR Parts.

Superseded

3.17 Not all of the airworthiness design requirements prescribed in EASA CSs are applicable to Defence aircraft. Consequently, the Authority has recognised an Airworthiness Code based on the airworthiness design requirements prescribed by EASA in the following CSs:

(a) CS-23[2] – Normal, Utility, Aerobatic and Commuter Aeroplanes

(b) CS-25 – Large Aeroplanes

(c) CS-26 – Continued airworthiness and safety improvements for transport category airplanes

(d) CS-27 – Small Rotorcraft

(e) CS-29 – Large Rotorcraft

(f) CS-E – Engines

(g) CS-P – Propellers.

3.18 EASA also prescribes minimum systems and/or equipment requirements for specified operations in CSs, and these requirements inherently levy airworthiness design requirements. Further, EASA has issued operational regulations under European Commission Regulation (EU) No 965/2012, which prescribes technical requirements and administrative procedures related to air operations. These requirements inherently levy airworthiness design requirements through the specification of minimum systems and equipment necessary for specified operations in European airspace. The applicability and suitability, for Defence aircraft, of the airworthiness design requirements inherently levied in the following EASA CSs and EU regulations will be established following determination of the type of operations to be undertaken by the Defence aircraft and the airspace in which these operations will occur:

(a) CS-ACNS – Airborne Communications, Navigation and Surveillance

(b) CS-AWO – All Weather Operations

(c) Regulation (EU) 965/2012 Annex IV Commercial Air Transport, Subpart D Instruments, Data and Equipment CAT.IDE.A (Aeroplanes) and CAT.IDE.H (Helicopters)

(d) Regulation (EU) 965/2012 Annex V Specific Approvals.

3.19 Accordingly, from Defence's perspective, EASA's Airworthiness Code effectively consists of airworthiness design requirements from CS-23, -25, -26, -27, -29, -E and -P, and those requirements levied by operational CSs and EU regulations that are relevant to proposed Defence operations. This Airworthiness Code is recognised by the Authority as providing an acceptable foundation for the safe design of Defence aircraft. Further detail on the application of EASA prescribed airworthiness design requirements for particular aircraft types, technologies and systems, and operations is contained in the relevant chapters in Sections 2 and 3 of this manual.

Civil Aviation Safety Authority

3.20 The Civil Aviation Safety Authority (CASA) of Australia is an Authority recognised civil NAA. CASA prescribes airworthiness design requirements in the Civil Aviation Safety Regulations (CASRs). CASA's approach to prescribing airworthiness design requirements is to leverage extensively off those requirements prescribed in the associated FARs and CSs. For example, CASR Part 23 identifies 'the airworthiness standards for an aeroplane in the normal category, utility category, acrobatic category

Superseded

or commuter category' as those prescribed by the FAA and EASA in FAR Part 23, CS-VLA and CS-23 (with any changes identified by CASA in CASR Part 23).

3.21 The Authority has recognised an Airworthiness Code based on the airworthiness design requirements prescribed by CASA in the following CASRs:

(a) CASR Part 23[3] – Airworthiness standards for aeroplanes in the normal, utility, acrobatic or commuter category

(b) CASR Part 25 – Airworthiness standards for aeroplanes in the transport category

(c) CASR Part 27 – Airworthiness standards for rotorcraft in the normal category

(d) CASR Part 29 – Airworthiness standards for rotorcraft in the transport category

(e) CASR Part 33 – Airworthiness standards for aircraft engines

(f) CASR Part 35 – Airworthiness standards for aircraft propellers.

3.22 While CASA leverages extensively off the airworthiness design requirements prescribed by the FAA and EASA, CASA also prescribes minimum systems and/or equipment requirements for particular operations in CASR operational regulations and Civil Aviation Orders (CAOs), and these requirements inherently levy airworthiness design requirements. The applicability and suitability, for Defence aircraft, of the airworthiness design requirements levied in the following CASRs and CAOs will be established following determination of the type of operations to be undertaken by the Defence aircraft and the airspace in which these operations will occur:

(a) CASR Part 91 – General and Operating Flight Rules (and associated Manual of Standards)

(b) CASR Part 121 – Australian Air Transport Operations-Larger Aeroplanes (and associated Manual of Standards)

(c) CAO Part 20 – Air Service Operations

(d) CAO Part 82 – Air Operators Certificates.

3.23 Accordingly, from Defence's perspective, CASA's Airworthiness Code effectively consists of airworthiness design requirements from CASR 23, 25, 27, 29, 33 and 35, and those requirements levied by CASR Parts 91and 121, and CAOs, that are relevant to proposed Defence operations. This Airworthiness Code is recognised by the Authority as providing an acceptable foundation for the safe design of Defence aircraft. Further detail on the application of CASA prescribed airworthiness design requirements for particular aircraft types, technologies and systems, and operations is contained in the relevant chapters in Sections 2 and 3 of this manual.

US DoD

3.24 The United State Air Force (USAF), US Navy and US Army are MAAs recognised by the Authority. The US DoD airworthiness design requirements are published in military handbook MIL-HDBK-516C, Airworthiness Certification Criteria. This document follows a 'systems' based approach (rather than aircraft type), with references to applicable airworthiness criteria, design standards, means of compliance and tailoring for different aircraft types where required.

3.25 The airworthiness design requirements prescribed in MIL-HDBK-516C are recognised by the Authority as providing an acceptable foundation for the safe design of Defence aircraft. Importantly,

Superseded

previous versions of MIL-HDBK-516 (with the exception of MIL-HDBK-516B (Expanded Version)) are not MAA Airworthiness Codes recognised by the Authority. Only MIL-HDBK-516C (and MIL-HDBK-516B (Expanded Version)) prescribes airworthiness design requirements in a manner that satisfies the criteria for Airworthiness Code recognition described in paragraph 3.7. Note that MIL-HDBK-516C is intended to be tailored to prescribe airworthiness design requirements for specific aircraft types and roles.

UK MoD

3.26 The United Kingdom Ministry of Defence (UK MoD) is an Authority recognised MAA. The UK MoD prescribes airworthiness design requirements in Defence Standard DEF-STAN 00-970, Design and Airworthiness Requirements for Service Aircraft. DEF-STAN 00-970 is divided into a number of Parts that prescribe airworthiness design requirements for specific aircraft types and ancillary equipment categories as follows:

a. Part 1 – Combat Aeroplanes
b. Part 3 – Small Type Aeroplanes
c. Part 5 – Large Type Aeroplanes
d. Part 7 – Rotorcraft
e. Part 11 – Engines.

3.27 The airworthiness design requirements prescribed in the UK MoD Airworthiness Code defined in paragraph 3.26 are recognised by the Authority as providing an acceptable foundation for the safe design of Defence aircraft. However, like the US DoD Airworthiness Code, the UK MoD Code is intended to be tailored to prescribe airworthiness design requirements for specific aircraft types and roles.

AIRCRAFT NOT DESIGNED TO AN AUTHORITY APPROVED AIRWORTHINESS CODE

3.28 Occasionally, Defence will procure aircraft that were not developed to an Authority recognised Airworthiness Code. In these circumstances, the Authority will determine whether the airworthiness design requirements applied to the aircraft design provide an acceptable foundation for the safe design of Defence aircraft. There are two situations where such an assessment may be required:

(a) the aircraft design has been developed using an Airworthiness Code that has not yet been recognised by the Authority, or

(b) the aircraft design has been developed to satisfy a bespoke suite of airworthiness design requirements.

3.29 Each of these situations is discussed in the following paragraphs.

Aircraft designed to a non-Authority recognised Airworthiness Code

3.30 Where Defence proposes to procure an aircraft design that has been developed using an Airworthiness Code (either civil or military) that is not recognised by the Authority, the Authority will evaluate the Airworthiness Code to determine if it satisfies the criteria for Authority recognition at paragraph 3.7. Alternatively, the Authority will evaluate the airworthiness design requirements prescribed for the original aircraft design using the approach described in paragraphs 3.31 and 3.32 below. In either case, the design requirement supplementation described at paragraphs 3.9 and 3.10

Superseded

is likely to be applicable.
Aircraft designed to a bespoke suite of airworthiness design requirements

3.31 Defence may acquire aircraft that have been 'type certified' by Authority recognised MAAs (eg US Army, US Navy and French DGA), where the suite of airworthiness design requirements used to support this certification do not satisfy one or more of the criteria at paragraph 3.7 for Authority recognition as an Airworthiness Code. For example:

(a) The US Army has prescribed airworthiness design requirements in ADS-51-HDBK US Army Rotorcraft and Aircraft Qualification Handbook. However, ADS-51-HDBK does not satisfy the criteria at paragraph 3.7.c for an Airworthiness Code to prescribe a comprehensive suite of airworthiness design requirements.

(b) While the US Navy may adopt MIL-HDBK-516C when establishing the certification criteria for a particular aircraft design, the US Navy does not currently present these criteria in a consolidated Type Certification Basis (TCB) (which is a fundamental requirement of MIL-HDBK-516C)[4]. In essence, the US Navy defines a bespoke 'Airworthiness Code' for each aircraft certification program, but does not promulgate the Code in a manner that satisfies the criteria at paragraph 3.7.e regarding Airworthiness Code consolidation and ease of access.

3.32 While the Authority does not classify these sets of airworthiness design requirements as Airworthiness Codes, they may still be approved by the Authority on an individual basis (through approving the Defence aircraft TCB) as providing a suitable foundation for the safe design of a Defence aircraft. This might be achieved through comparison to a recognised Airworthiness Code, or by another method determined by the Authority. Regardless, the design requirements supplementation described at paragraphs 3.9 and 3.10 is likely to be equally applicable.

APPLICATION OF AUTHORITY RECOGNISED AIRWORTHINESS CODES TO MAJOR CHANGES

3.33 Regardless of whether an aircraft design conforms to an Authority recognised Airworthiness Code or not, any major design changes to Defence aircraft must satisfy the airworthiness design requirements prescribed in the approved aircraft TCB as a minimum. Where appropriate, more recent versions of airworthiness design requirements should be evaluated to determine whether compliance with the later version would contribute materially to the level of safety afforded by the design and would be practicable to implement. The determination of whether compliance with a later amendment to the applicable airworthiness design requirements is warranted, is conducted using the criteria defined in DASR 21.A.91, DASR 21.A.97 and DASR 21.A.101. Section 1 Chapter 2 Annex A provides further guidance on the application of earlier versions of Airworthiness Codes to major design changes.

RETROSPECTIVE APPLICATION OF AUTHORITY PRESCRIBED AIRWORTHINESS DESIGN REQUIREMENTS

3.34 The Authority prescribed airworthiness design requirements in this manual are not intended to be applied to in-service aircraft that are not undergoing modification (ie retrospective application). Where the Authority determines that retrospective application of an airworthiness design requirement is warranted, this will be promulgated via separate direction.

Superseded

DESIGN REQUIREMENTS FOR CAPABILITY AND INTEROPERABILITY

INTRODUCTION

4.1 It is not within the Authority's charter to prescribe design requirements for capability and interoperability. Rather, these design requirements are usually identified by the procurement organisation using the capability manager's specified performance requirements (ie Functional Performance Specifications (FPS)) as a basis, and with input from Defence domain specialists.

4.2 This chapter of the DASDRM describes how airworthiness design requirements may contribute to achieving capability and interoperability outcomes.

CAPABILITY DESIGN REQUIREMENTS

4.3 While many of the airworthiness design requirements in the DASDRM may have an effect on the capability provided by Defence aircraft, aviation safety not the achievement of capability outcomes is the principal purpose of Authority prescribed airworthiness design requirements.

4.4 Nevertheless, there are three circumstances where the Authority may identify capability design requirements and present these requirements in the DASDRM, as follows:

(a) where implementing an Authority prescribed airworthiness design requirement, to the letter, could have an adverse impact on capability, or

(b) where an Authority prescribed airworthiness design requirement inherently includes elements that focus on capability (eg missions system performance), in which case some guidance on the application of these requirements is reasonable, or

(c) where a specific capability standard or requirement needs to be captured in the suite of design requirements as it will have a substantial influence on the final design solution.

4.5 Note that it may be useful to consider capability requirements as a means of treating hazards associated with mission outcomes (eg failure of an IFF system may result in battlefield fratricide), and therefore apply tailored airworthiness design requirements to treat these hazards. However, such an application does not contribute to airworthiness, and should not be confused with the requirements comprising an aircraft's certification basis.

INTEROPERABILITY DESIGN REQUIREMENTS

4.6 It is not within the Authority's charter to prescribe design requirements for aircraft interoperability. However, as with capability design requirements, there may be occasions where Authority prescribed airworthiness design requirements impact Defence's interoperability needs. In these circumstances, the Authority may identify the interoperability requirement at the end of the associated chapter in the DASDRM.
Air Force Interoperability Council (AFIC) standards

Superseded

4.7 Defence aircraft interoperability requirements are largely satisfied through the application of the Air Force Interoperability Council (AFIC) series of standards. The AFIC aims to enhance interoperability between the United States, the United Kingdom, Canada, New Zealand and Australia. AFIC standards are developed and published by AFIC within the following domains:

(a) Agile Combat Support: capabilities and functions to establish, operate, sustain and close an airbase, including the deployment and recovery phases.

(b) Air Mobility: movement of personnel, materiel and forces by air to, from and within a theatre of operations.

(c) Counter Small Uncrewed Aerial Systems (C-sUAS): address Air specific C-sUAS requirements and contribute to Joint and Combined c-sUAS activities of benefit to AFIC nations.

(d) Joint All Domain Command and Control (JADC2): the art and science of decision making to rapidly translate decisions into action, leveraging capabilities across all domains and with mission partners to achieve operational and information advantage in both competition and conflict.

(e) Live, Virtual and Constructive – Operational Training (LVC-OT): includes such elements as training policy and systems, airspace and ranges, pods/instrumentation, aggressors/ contractor air, threat generators, networks, synthetics, operational training centres, workforce and so on.

(f) Aerospace Medicine: all matters concerning aviation medicine such as anthropometrics, aeromedical evacuation, effects of altitude, breathing oxygen and exposure limits for noise, vibration, heat and cold.

(g) Fuels: aviation fuels, oils, lubricants and gasses.

(h) Airworthiness: mutual recognition of AFIC Nation's Airworthiness Systems.

4.8 Defence aviation interoperability requirements are managed by the Air Capability Enablers within Air Force Headquarters. Organisations seeking to acquire or modify Defence aircraft that may be subject to interoperability considerations should seek advice from Air Capability Enablers in the first instance. Information related to AFIC standards and Defence aviation involvement in AFIC is available at the Air Force AFIC website.

4.9 Where a conflict exists between an Authority prescribed airworthiness design requirement and an AFIC standard, the Authority prescribed requirement takes precedence. Designers wishing to adopt the AFIC standard to satisfy interoperability requirements, in lieu of the Authority prescribed requirement, are to seek Authority agreement that the AFIC standard provides an equivalent level of safety or seek dispensation from the Authority for non-compliance with the prescribed requirement.

Superseded

SECTION 2 - INTEGRATED DESIGN REQUIREMENTS

CHAPTER 1 - APPLICATION OF INTEGRATED DESIGN REQUIREMENTS

APPLICATION OF INTEGRATED DESIGN REQUIREMENTS

1.1 A number of engineering disciplines associated with aircraft designs affect multiple aircraft systems or have an impact on most aspects of the design. For example, aviation software is present in virtually all aircraft systems and often performs functions that have a direct impact on the safe operation of Defence aircraft. The airworthiness design requirements associated with these disciplines are referred to in the DASDRM as 'integrated design requirements'.

1.2 Given the ubiquitous nature of these engineering disciplines, the airworthiness design requirements prescribed in the Authority recognised Airworthiness Codes are often generic and require considerable tailoring to satisfy the requirements of a particular aircraft for its intended configuration, role and operating environment. Consequently, for these engineering disciplines, the Authority has prescribed airworthiness design requirements to define the tailoring required for Defence's unique CRE.

Scope

1.3 Section 2 of the DASDRM presents the Authority prescribed airworthiness design requirements for the following integrated aircraft design engineering disciplines:

(a) system safety,

(b) aviation software,

(c) electromagnetic environmental effects,

(d) human factors engineering,

(e) crash protection,

(f) fire protection,

(g) smoke and fumes protection,

(h) equipment environmental qualification,

(i) defence long range operations, and

(j) aircraft/stores compatibility.

Superseded

SYSTEM SAFETY

INTRODUCTION

2.1 Hazards in aircraft design are largely managed by employing aerospace design standards, since these standards represent many years of experience in the identification, analysis and control of hazards. However, while a system may be comprised of individual components that meet relevant reliability, safety or performance benchmarks on their own, the integration of these sub-systems can give rise to hazards at the system level. System safety is an engineering discipline that encompasses safety as a core aspect of any given system design (or design change). System safety comprises a number of tools and techniques to identify aircraft hazards and implement controls for those hazards to satisfy prescribed safety objectives. The application of these tools and techniques is an essential adjunct to a standards based approach to design, noting that design standards may:

(a) not apply to a whole system, merely elements of the system

(b) not be relevant for novel applications, which can pose novel hazards

(c) not keep up with technology advances, since standards often have review and update cycles that span many years

(d) allow different options depending on the system's criticality.

2.2 The implementation of a robust and effective system safety approach to Defence aircraft design is prescribed by the Authority. As system safety involves a whole-of-system approach to design, achievement of safety objectives requires the application of the system safety tools and techniques during aircraft design activities, normally through the adoption of a formal System Safety Program. The framework and processes under which system safety is applied for Defence aircraft designs may be articulated in a dedicated artefact (for example via a System Safety Program Plan) or inherently included in a design organisation's design processes.

2.3 **Other National Airworthiness Authority (NAA)/Military Airworthiness Authority (MAA) approaches to system safety.** The Authority has evaluated recognised NAA and MAA approaches to implementing system safety, and the associated aviation system safety standards, and concluded that intelligent application and in some cases expansion is required to satisfy Defence's regulatory and statutory requirements. For example, system safety standards may not account for Defence's obligations under the WHS legislation, since they may permit 'risk acceptance' once a specified risk level has been achieved. To promote the 'intelligent application' of system safety standards, this chapter adopts a different structure to other DASDRM chapters. Here, the chapter first defines the outcomes that are needed for a robust system safety program. The chapter then identifies where recognised NAA/MAA approaches to system safety require particular attention if they are to meet the Authority's prescribed outcomes. This approach provides design organisations with guidance to embed robust system safety practices into their engineering procedures.

Superseded

Scope

2.4 This chapter presents Authority prescribed system safety design requirements that are applicable to design activities conducted for new aircraft and design changes. The Authority's prescribed design requirements for software safety are provided at Section 2 Chapter 3.

SYSTEM SAFETY REQUIREMENTS

2.5 The application of system safety to Defence aircraft designs achieves three key outcomes:

(a) Design safety objectives are:

1. defined, and
2. agreed by the Authority.

(b) Design hazards[1] are identified and controlled.

(c) Hazards identified during design, and associated controls, are documented.

2.6 Authority prescribed system safety design requirements that support the achievement of each of these outcomes are defined in the following paragraphs.

Defining safety objectives

2.7 The establishment of safety objectives for the particular aircraft type, cognisant of Defence's role and operating environment, is fundamental to the implementation of a robust system safety program and represents good aviation engineering design practice. Over many decades of aviation operations, these safety objectives have been demonstrated to achieve safe aircraft design. Consequently, the defined safety objectives represent the point at which further elimination or minimisation of identified hazards is unlikely to be reasonably practicable.

2.8 Safety objectives may be articulated as specific outcomes to be achieved (eg no single point failures having a catastrophic severity) or through objective safety criteria applicable to a particular hazard severity (eg Failure Probability Objectives (FPOs) and Design Assurance Levels (DALs)).

2.9 **SS Requirement (Essential) (Aircraft Acquisitions).** *Applicants for a Military Type Certificate must establish the quantitative safety criteria to be applied to the aircraft design (eg FPOs, catastrophic failure rate, and so on).*

2.10 A design organisation's design processes must describe how the organisation will ensure that quantitative safety criteria applicable to the Defence aircraft are identified and met for new aircraft designs. Prior to adopting the quantitative criteria as a basis for Defence aircraft certification, the design organisation must seek Authority agreement that the quantitative criteria represent an appropriate basis for safe aircraft operations and aircraft certification. The approved quantitative safety criteria will form an integral element of a Defence aircraft's Type Certification Basis.

2.11 **SS Requirement (Essential) (Aircraft Design Changes).** *Aircraft design changes must comply with the quantitative safety criteria from the initial aircraft design (ie the original aircraft design FPOs, catastrophic failure rate, and so).*

Superseded

2.12 Once the quantitative safety criteria have been agreed by the Authority, they must be applied to all design changes unless prior agreement to adopt amended safety criteria has been obtained from the Authority. Any proposal to adopt amended safety criteria will represent a change to the approved TCB and, therefore, a Military Certification Review Item (MCRI) must be raised and submitted to the Authority for approval, regardless of whether the design is a Major or Minor change.

2.13 **SS Requirement (Essential)**. Applicants for a Military Type Certificate or Major Change approval must seek Authority agreement where reduced 'at risk' time is proposed to be accounted for in satisfying prescribed safety objectives.

2.14 The use of limited exposure intervals (eg 'at risk' time) to justify a reduction in safety objectives for aircraft systems could lead designers into error. For example, it would be inappropriate to use a limited exposure interval for reducing safety objectives for a safety-critical system, where the adverse consequences of system failure cannot be clearly linked to a specific stage of flight or set of flight conditions (eg when establishing safety objectives for ejection seats). Where the use of 'at risk' time is proposed in support of meeting FPOs for a specific aircraft system, a determination on the adequacy of the proposed approach must be sought from the Authority.

2.15 **SS Requirement (Essential).** *The design or design change must not permit a single-point failure, or permit a combination of independent failures (including human errors associated with the human machine interface) involving safety-critical functions, which have a consequence of catastrophic, critical (MIL-STD-882 definition) or hazardous (FAR/CS 2x.1309 definition) severity.*

2.16 Safety-critical systems must be "fail-safe", such that any single failure will cause the system to revert to a state which will not result in an unsafe condition. Independent system failures and human machine interface errors that have a consequence of catastrophic, critical (MIL-STD-882 definition) or hazardous (FAR/CS 2x.1309 definition) severity must be eliminated through design.

2.17 When establishing compliance with this requirement, the failure of any single element, component or connection in a system or sub-system during any one flight must be assumed regardless of its probability, and such failures should not be catastrophic. Subsequent failures during the same flight, whether detected or latent, must also be assumed unless the joint probability of such failure conditions satisfies the relevant catastrophic, critical or hazardous FPO.

2.18 Compliance with this requirement must be demonstrated through a thorough safety assessment, including both qualitative and quantitative assessment of the design for each catastrophic, critical or hazardous failure condition identified by a Functional Hazard Assessment (FHA).

2.19 Redundant subsystems may also be implemented as a hazard mitigation strategy for safety-critical systems. These systems are used when the primary system fails and the function of that system is required to maintain continued safe flight and landing. The separation or shielding of redundant subsystems from damage, adverse operating effects of neighbouring systems/components, common cause faults and other environmental factors is essential for a safe design.

2.20 **SS Requirement (Essential).** *Information concerning unsafe system operating conditions must be provided to the crew to enable them to take appropriate corrective action.*

2.21 **SS Requirement (Essential).** *Systems and controls, including indications and annunciations, must be designed to minimise crew errors, which could create additional hazards.*

2.22 **SS Requirement (Essential).** *A 'safe' indication must not be presented to the crew when an 'unsafe' condition exists.*

Superseded

2.23 Where analysis identifies that some action by the crew is required to achieve safety objectives, the designer must verify that:

(a) any identified indications are actually provided by the system

(b) any identified indications will actually be recognised

(c) any actions required have a reasonable expectation of being accomplished successfully and in a timely manner.

2.24 When failure monitoring and indication are provided by a system, its reliability must be compatible with the safety objectives associated with the system function for which it provides the indication. In the case of aircraft conditions requiring immediate crew action, a suitable warning indication must be provided to the crew, if not provided by inherent aircraft characteristics.

2.25 Defence aircraft designs must also account for potential human error in interpretation of system operations and controls, or warnings, indications or annunciations, which could result in crew actions that introduce hazards. In particular, no probable system failure is to result in a 'safe' indication of an 'unsafe' condition so that the crew would incorrectly assume the system is available or functional. When an unsafe condition is annunciated or detected, the flying instructions must have clear and precise corrective procedures for handling the failure without an excessive increase in workload.

2.26 **SS Requirement (Essential).** *The design of a safety-critical system must prevent the inadvertent initiation by human error of a catastrophic failure condition.*

2.27 Defence aircraft designs must account for, and where reasonably practicable eliminate, potential impacts of human error in the design of safety-critical systems as a result of human machine interface issues. For example, the addition of a throttle lever detent prevents an inadvertent selection of reverse thrust without the conscious lifting of the throttle levers over the detent. Similarly, a guarded switch for activation of engine fire extinguishers prevents inadvertent switch selection.

2.28 **SS Requirement (Essential).** *The operation of non-required equipment (eg mission systems), must not interfere with the proper functioning of safety-critical systems or present a hazard themselves.*

2.29 Non-required systems do not need to perform their function throughout the entire aircraft operating and environmental conditions. However, in situations where the non-required equipment is to be operated, both normal operations and operation under failure conditions must not adversely affect safe aircraft operations, safety-critical systems or aircraft occupants. Hazardous conditions associated with normal operations, malfunction and erroneous behaviour of non-required equipment must be identified through FHAs.

Hazard identification and control

2.30 Robust hazard identification and control is a cornerstone of safe aircraft design. Design organisations must implement processes that support effective hazard identification and control that accounts for Defence's role and operating environment, and achieves the applicable safety objectives for each failure condition and associated hazard. Where safety objectives are not initially achieved, additional controls must be identified and implemented (using the hierarchy of controls) to meet the prescribed safety objectives.

Superseded

2.31 **SS Requirement (Essential).** *Systematic techniques must be implemented for identifying credible hazards attributable to hardware, software and human system integration.*

2.32 System safety tools and techniques provide a robust means of hazard identification. These tools and techniques expose failure conditions where required safety criteria are not met or where integrated system hazards exist that have not been identified via compliance with design standards. For aircraft design changes, the existing aircraft Hazard Log (or similar) may also assist in identifying relevant hazards.

2.33 A design organisation's design processes must describe the application of formal hazard identification techniques and any tailoring to suit the specific design activity being undertaken. In particular, the processes should describe how the design organisation intends to apply system safety tools and techniques defined in aerospace system safety standards, including for those hazards applicable to complex system interactions, such as formal Functional Hazard Assessment/Analysis and/or System/Sub-System Hazard Analyses.

2.34 **SS Requirement (Essential).** *Identified hazards must be analysed to verify the achievement of safety objectives, or additional controls must be identified and implemented to achieve safety objectives.*

2.35 Robust analysis of hazards identified during design activities is an essential contributor to aviation safety. A design organisation's design processes must therefore describe the application of formal hazard analysis techniques and any tailoring to suit the specific design activity being undertaken. Hazard analysis techniques, commensurate with the scope of the design and potential impact on aviation safety must be employed to identify potential controls. For example, Fault Tree Analyses, Common Cause Analyses, Zonal Safety Analyses, Particular Risk Analyses and so on should be adopted where the design is complex and/or the consequences of failure are severe.

2.36 **SS Requirement (Essential).** Hazard controls must be implemented in accordance with the hierarchy of risk controls.

2.37 As discussed at paragraph 2.8, good practice in the aviation industry requires the identification of hazards and the implementation of controls to achieve prescribed safety objectives. However, where prescribed safety objectives are not met, and therefore the design falls outside of this good practice, any residual hazards must be robustly addressed through the implementation of additional controls. Implementation of controls must be undertaken with an appropriate understanding and application of the hierarchy of risk controls. The hierarchy of controls, per Regulation 36 of the WHS legislation, requires:

(a) implementing one or more of: substitution of the hazardous design with something safer; isolation of the hazard from people; and reducing the risk through engineering controls (eg use of mechanical guards or circuit isolation devices)

(b) if a risk remains, implementing administrative controls (ie procedures and training)

(c) if a risk remains, implementing the use of PPE.

2.38 The System Safety Design Order of Precedence, described in MIL-STD-882, needs intelligent application to fully satisfy the hierarchy of controls. Importantly, the effectiveness of procedures and training as a sole treatment strategy for hazards is unreliable as the primary control over the system life cycle. Warnings, cautions or other written advisory notifications must not be used as the only risk reduction method for hazards having catastrophic, critical (MIL-STD-882) or hazardous (FAR/CS 2x.1309) severities.

Superseded

2.39 **SS Requirement (Essential).** *Consultation, co-operation and co-ordination between stakeholders must ensure all potential risk controls are identified and assessed for implementation.*

2.40 Consultation, co-operation and co-ordination frameworks enable robust hazard identification and analysis, and the identification and assessment of reasonably practicable controls, both design/ technical and operational in nature. A design organisation's design processes must include the means by which stakeholder consultation, co-operation and co-ordination will be achieved. Operational stakeholder engagement is essential to evaluate potential operational controls for hazards when the design cannot meet prescribed safety criteria due to an adverse impact on Defence capability. Importantly, the framework must ensure that proposed design changes do not invalidate or impact extant controls for hazards that may not be related to the design under consideration.

2.41 One framework under which consultation, co-operation and co-ordination can be enacted is through an established System Safety Group (SSG) or equivalent body, which is responsible for reviewing identified hazards and associated controls. If employed, the SSG should be structured to optimise timely and effective consultation, co-ordination and co-operation between technical, operational and maintenance subject matter experts, and other relevant specialists and stakeholders.

2.42 A key outcome of consultation, co-operation and co-ordination is the identification of and commitment to the means by which controls will be implemented, reviewed and maintained. Clear responsibilities for confirming that controls have been implemented and are being monitored for effectiveness must be established within the adopted framework.

2.43 **SS Requirement (Essential).** *Where meeting design safety objectives would have an unacceptable adverse effect on capability, the non-compliance must be approved by the Authority.*

2.44 Occasionally, compliance with design safety objectives may unacceptably impact Defence's required capability outcomes. Where prescribed safety objectives cannot be met, the applicant must submit for Authority consideration and agreement any proposal to amend safety objectives. The proposal to amend the safety objectives must be supported by clear risk characterisation associated with the amended safety objectives and confirmation by the relevant operational commander that the operational impact of compliance with the prescribed safety objectives is unacceptable. Only where the Authority concludes that the risk has been appropriately characterised, the operational commander has made an informed determination that the risk has been minimised so far as is reasonably practicable and residual risk retention is appropriate, will the Authority approve the amended safety objectives via a Military Certification Review Item (MCRI).

Documenting hazards

2.45 To ensure that all controls necessary to achieve prescribed safety objectives are effectively captured and monitored, and will be considered during future design activities, robust hazard documentation is required.

2.46 **SS Requirement (Essential).** *Hazards identified during design activities, and associated controls, must be documented.*

2.47 While the identification of hazards and associated controls through a robust system safety program will result in the achievement of safety objectives, the continued safety of the design will only be achieved if any controls associated with identified hazards are implemented and remain effective. Hazard documentation also assists designers to ensure that future design activities do not introduce changes that either remove an existing hazard control or impact the effectiveness of a

Superseded

control. Consequently, hazard documentation is required to provide a safety baseline for the design and to support future design activities.

2.48 One means of documenting hazards and controls is via a Hazard Log. If employed, a Hazard Log should be updated during the aircraft's service life whenever:

(a) previously unidentified hazards, or new hazards introduced as part of a design change, are identified

(b) new controls for an already identified hazard are implemented, or already implemented controls are removed/changed.

2.49 A Hazard Log (or equivalent) is a key artefact that supports the Military Type Certificate Holder to satisfy their obligations under DASR 21.A.44, regarding the in-service management of product hazards, and to support the outcomes required of organisational Safety Management Systems for the Defence aircraft. Where the relevant operational commander has agreed to retention of any safety risk that may be posed by hazards remaining after implementation of controls, a Hazard Log (or equivalent) may also be used to record risk retention details, including the criteria for review of control effectiveness and risk retention decision validity.

AUTHORITY RECOGNISED NAA/MAA APPROACHES TO SYSTEM SAFETY

2.50 As previously discussed the common civil and military system safety standards require intelligent application and in some cases expansion if they are to meet Authority prescribed system safety requirements. Where the application of these standards is subject to oversight by an Authority recognised NAA/MAA, and within the framework and scope of that authority's regulatory approach, application of the standards may entirely satisfy the Authority prescribed system safety requirements. However, where the standards are applied outside of the regulatory system of the relevant NAA/MAA, tailoring of the standards may result in the Authority prescribed requirements no longer being met.

2.51 This section describes how the adoption of common system safety standards, under Authority recognised NAA/MAA oversight, contributes to meeting the Authority prescribed system safety requirements in this chapter. This section also provides designers with guidance on the intelligent application of the common system safety standards, where a Defence aircraft design is not subject to oversight by an Authority recognised NAA/MAA.

Civil system safety approach

2.52 Common civil system safety standards applicable to aviation consist of the FAR/CS 2x.1309, the associated Acceptable Means of Compliance (AMC) (eg AC25.1309 and AMJ 25-1309), and the SAE standards ARP4754 Guidelines for Development of Civil Aircraft and Systems, and ARP4761 Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment. The civil standards describe methodologies and processes to establish safety objectives (both quantitative and qualitative) for the aircraft design, and to identify and control hazards. Indeed, the civil approach to system safety in aircraft design is closely aligned with Defence's approach to system safety.

2.53 **Designs certified by an Authority recognised NAA.** For new aircraft or modifications to existing aircraft, the extant civil certification applies where the Defence aircraft design meets the configuration, role and operating environment (CRE) approved by the certifying authority. Application

Superseded

of the civil system safety standards in this case will achieve compliance with all Authority prescribed system safety requirements, since:

(a) the role and operating environment of the aircraft is known and accounted for, by both the designer and certifying NAA, in the civil certification program

(b) risk retention due to shortfalls against the prescribed safety objectives is not permitted by Authority recognised NAAs

(c) there is a well-established history of designers enacting system safety programs that meet recognised NAA requirements for the development of safe aircraft designs using appropriate hazard controls

(d) hazards will have been documented, and controls established and published in relevant OIP to ensure safety objectives continue to be met.

2.54 However, designs certified under a civil certification framework may not provide clear disclosure of all hazards and associated controls (per paragraphs 2.47 through 2.51), which is an important contributor to the MTCH meeting their DASR obligations. Consequently, additional insight into these hazards and implemented controls, or the ability to access this information where required, should be arranged.

2.55 **Designs developed using civil system safety standards, but not certified by an Authority recognised NAA.** As discussed above, application of the civil system safety standards within a civil regulatory context will satisfy the Authority's system safety requirements. Similarly, where the civil system safety standards are faithfully applied to designs that are not certified by an Authority recognised NAA, the design should also satisfy the Authority's prescribed safety objectives. However, where the prescribed safety objectives are not met, or the Defence aircraft CRE is outside of the scope of the CRE approved by the original certifying NAA, additional analysis of hazards that may be impacted will be required.

2.56 For all Defence aircraft designs where the civil system safety standards are adopted, the designer must ensure that the civil standards are rigorously applied. In particular, all prescribed safety objectives must be met, and the hierarchy of controls, per paragraphs 2.38 and 2.39, must be applied to those design elements where safety objectives cannot be met. Where the Defence CRE is outside of the scope of the CRE approved for the extant civil certification, designers must ensure that the CRE deltas are assessed to confirm that prescribed safety objectives are still met for the Defence CRE, or that additional controls are implemented where required. Finally, any identified hazards must be documented per paragraphs 2.47 through 2.51 to support in-service hazard management.

US Military system safety approach

2.57 MIL-HBK-516 Airworthiness Certification Criteria and MIL-STD-882 Department of Defense Standard Practice – System Safety define the US DoD system safety requirements for military systems. MIL-STD-882 describes methodologies and processes to establish safety objectives (both quantitative and qualitative) for the aircraft design, and to identify and control hazards.

2.58 **Designs certified by an Authority recognised US MAA.** US militaries have a well-established history of producing safe aircraft designs under their regulatory systems, which includes application of MIL-STD-882 and the adoption of system safety requirements prescribed in MIL-HDBK-516. Therefore, for new aircraft or modifications to existing aircraft, where the Defence configuration, role and operating environment (CRE) is consistent with that assumed for the US certification, application

Superseded

of MIL-STD-882 will achieve compliance with the majority of Authority prescribed system safety requirements.

2.59 However, a key aspect of the MIL-STD-882 approach to system safety is the ability for the 'program executive' to accept residual risk associated with hazards where the quantitative safety criteria (established per paragraphs 2.9 and 2.11 of this chapter) have not been met. This acceptance of residual risk may be inconsistent with both theDASRs and WHS legislation obligations. Therefore, any hazards 'accepted' under the MIL-STD-882 system safety approach will need to subsequently be evaluated by Defence, and additional controls implemented if reasonably practicable, to satisfy Defence regulatory and statutory requirements.

2.60 Finally, designs certified under a recognised US MAA certification framework may not provide clear disclosure of all hazards and associated controls (per paragraphs 2.47 through 2.51), which is an important contributor to the MTCH meeting their DASR obligations. Consequently, additional insight into these hazards and implemented controls, or the ability to access this information where required, should be arranged.

2.61 **Designs developed and certified outside of an Authority recognised US MAA's regulatory system.** When employed outside of the context of a recognised US MAA's regulatory approach, MIL-HBK-516 and MIL STD-882 require considerable intelligent application if the Authority requirements for identification and control of hazards are to be met. The following issues may result in non-compliance with Authority prescribed system safety requirements:

(a) The specific system safety activities (ie 'tasks') described in MIL-STD-882 are intended to be tailored, such that only those relevant to the particular design under consideration are conducted. Therefore, intelligent selection of relevant 'tasks' is required if Authority prescribed safety outcomes are to be met.

(b) The MIL-STD-882 approach to documenting and characterising risk associated with hazards may lead to the definition of 'acceptable' risk levels, which is inconsistent with the DASR approach to hazard management and Australian WHS legislation.

(c) The adoption of a purely MIL-STD-882 system safety program may lead a designer into error since it does not require that all safety objectives are met and therefore implies that the designer has some discretion in terms of compliance.

(d) The MIL-STD-882 approach to identifying hazards may not be undertaken using formal system safety tools and techniques that are commensurate with the degree of criticality and/or complexity of the design under consideration.

(e) MIL-STD-882 does not explicitly include considerations for fail safe design (noting that fail safe design is included in MIL-HBK-516C Airworthiness Certification Criteria, although not all US military aircraft designs adopt this Airworthiness Code) or for establishing safety criteria for systems with limited at risk exposure times.

2.62 Where a designer proposes to adopt MIL-HBK-516 and MIL-STD-882 for Defence-unique designs that will be certified outside of a recognised US MAA regulatory approach, all of the potential shortfalls at paragraph 2.63 will need to be resolved through intelligent application of the standard. In all cases, the Authority prescribed system safety requirements detailed in the preceding sections of this chapter must be met.

Superseded

2.63 DEF STAN 00-056 Safety Requirements for Defence Systems describes the generic UK MoD approach to implementing system safety for Defence systems, including aircraft designs. DEF STAN 00-056 is primarily a risk management standard that describes the process by which military equipment can be verified to have satisfied the UK safety legislation requirements. Without considerable intelligent application, the standard's 'risk management' approach is incompatible with the DASR approach to type certification/design approval and is inconsistent with Australian WHS legislation. As a result, DEF STAN 00-056 can only be used as the system safety standard for Defence aircraft design activities where agreement with the Authority has been reached on how the perceived deficiencies in the standard can be resolved.

SYSTEM SAFETY GUIDANCE

2.64 Further guidance on implementing the system safety requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

AVIATION SOFTWARE

INTRODUCTION

3.1 Software is utilised extensively in modern aircraft to implement a range of functionality, some of which may be safety critical. Software that controls safety critical functions may introduce risks that must be evaluated and treated during the development program through a robust software management system that incorporates the disciplines of software safety and software assurance. The application of these software engineering principles and practices, as defined within contemporary standards, is required to establish and maintain the functional integrity and safe behaviour of software installed on aviation platforms.

3.2 The term aviation software defines software that is designed for installation within a part or appliance of an aeronautical product. The implementation of a robust and effective software management approach to Defence aviation software design is prescribed by the Authority. This chapter defines the airworthiness design requirements for robust applications of aviation software. It then identifies common approaches to the management of aviation software that meet the Authority's prescribed design requirements. This chapter also includes some brief guidance on considerations for development assurance of Airborne Electronic Hardware (AEH). Due to its close relationship to software development assurance, the AEH guidance is temporarily included in the Additional Aviation Software Guidance below pending specific AEH content publication in this Manual.

Scope

3.3 This chapter presents the Authority prescribed airworthiness design requirements for aviation software.

AVIATION SOFTWARE DESIGN REQUIREMENTS

3.4 The design of aviation software that performs safety critical functions requires the application of two key software engineering principles that support the production of safe software:

(a) Software safety, which is integrated with system safety, where software hazards are identified, analysed and treated within the context of systems engineering principles.

(b) Software assurance, which defines the engineering rigour applied commensurate to the criticality of the functions performed by the Software.

3.5 Authority prescribed software design requirements that support the achievement of this outcome are defined in the following paragraphs.

Software Safety – Identifying Software Related Hazards

3.6 A software specification error, design flaw, or the lack of initial safety requirements can contribute to or cause a system failure or erroneous operator behaviour. Software safety is used to

Superseded

address software's contribution to aircraft hazards. It is an element of the aircraft's system safety and software development program and cannot be undertaken independently of the total effort.

3.7 **Design Requirement (Essential).** *Software safety must be applied as part of the system safety program to identify any derived requirements and determine the worst credible failure condition for aviation software.*

3.8 The Defence aviation approach to system safety and associated Authority prescribed requirements are detailed in Section 2, Chapter 2 and involves the identification of system level hazards. Software safety identifies the software contribution to those hazards, the development of derived requirements to mitigate the hazards and identifies the commensurate software assurance level to adequately mitigate the hazards.

3.9 Software safety brings together elements of traditional system safety approaches in conjunction with approaches used to address the unique properties of software. A major distinction of software safety assessments against the aircraft level system safety aspects is the absence of likelihood (probabilities) for each consequence; i.e. while the consequences of software failures can be clearly identified, software risks cannot be characterised in terms of likelihood. Software failures will consistently occur given the same inputs or conditions. Instead, the worst credible failure conditions are assessed utilising methods such as Functional Hazard Assessment (FHA) and Hazard and Operability Study (HAZOP) to identify software related hazards, the consequences related to realisation of these hazards and potential mitigation actions. The worst credible failure condition of aviation software is dependent on how it influences functional hazards at the system level; i.e. software safety links the software architecture to hazards and their failure pathways through to the system level.

3.10 Software safety, when properly implemented, enables the proper identification and tracing of requirements, not only those applied from the system level, but also those requirements that are derived from design decisions. These derived requirements are used to incorporate design criteria and may be generic; e.g. performance and timing criteria or mandating the use of partitioning.

3.11 Since software safety is a subset of system safety, it must be an integral component of the formal system safety program discussed at Section 2, Chapter 2. The following documents present robust frameworks for identifying the relevant tasks, processes, activities, and guidance for inclusion in the system safety program:

(a) IEEE-STD-1228-1994 Standard for Software Safety Plans

(b) U.S. Department of Defense Joint Software Systems Safety Engineering Handbook, Version 1.0.

3.12 A Development Assurance Level (DAL), commensurate with the worst credible failure condition identified, is utilised to establish the required software assurance safety objectives. The assignment of DALs is equally applicable to complex electronic hardware (CEH) hazards. DALs are obtained through proper application of ARP 4754A Guidelines for Development of Civil Aircraft and Systems. The Authority is to be consulted on the use of other system or software safety standards as they may require tailoring to satisfy software safety objectives.

Software Assurance – Mitigating Software Related Hazards

3.13 Software assurance is closely coupled to software safety. As previously discussed, the DAL for a given system is obtained through application of system safety and software safety. The assigned DAL

Superseded

determines the processes applied to establish confidence that system development has sufficient rigour to limit the likelihood of development errors that could impact aircraft safety.

3.14 **Design Requirement (Essential).** *Aviation software must satisfy the prescribed objectives required for the Development Assurance Level commensurate with its worst credible failure condition.*

3.15 Software assurance is an activity that includes a range of certification objectives (or certification activities) to be satisfied in all phases of the development. The applicability of these certification objectives is dependent on the DAL of the software, with higher assurance levels requiring an increased scope of certification objectives, thus providing a greater level of confidence in the software. The scope of certification objectives can cover the planning, requirements, development and verification phases of the program, as well as configuration management, quality assurance and certification liaison activities.

3.16 Software assurance is achieved through proper application of RTCA DO-178C Software Considerations in Airborne Systems and Equipment Certification. Specific CEH design/assurance considerations are described in EASA CM SWCEH-001 Development Assurance of Airborne Electronic Hardware and RTCA DO-254 Design Assurance Guidance for Airborne Electronic Hardware. While other Software Assurance standards exist, as discussed later, tailoring of those standards to the satisfaction of the Authority may be required to satisfy an appropriate level of software assurance.

Software Lifecycle – Integration of the Software Principles

3.17 Aviation software has a life cycle that must be managed during development and in-service. Effective software life cycle management is an inherent part of the software safety and software assurance approaches. Software assurance objectives exist for assessment of the lifecycle processes and products, the rigour of which is based on the system DALs.

3.18 Effective management of the software life cycle ensures that compliance with the aviation software design requirements is considered at the planning stage, throughout development, and in-service operation. Software life cycle considerations can include supportability, documentation, tools, intellectual property, personnel expertise, interface control, problem reporting and tracking systems, language selection, and hardware requirements. In managing the aviation software life cycle, the authority preferred approach is presented in ISO/IEC/IEEE 12207:2017(E) Systems and software engineering – Software life cycle processes.

AUTHORITY RECOGNISED APPROACHES TO AVIATION SOFTWARE

3.19 Section 1 Chapter 3 describes the Authority approach to recognition of Airworthiness Codes, which represent prescribed airworthiness requirements from a recognised civil or military Airworthiness Authority. The Airworthiness Codes do not specify a single standard or method to manage the integrity of aviation software, but each describes and implies an ecosystem of activities that must be undertaken. This section describes common NAA and MAA applications of aviation software safety and assurance and how they meet the Authority's design requirements.

Civil Aviation Approach

3.20 NAAs such as the Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA) and the Civil Aviation Safety Authority (CASA) adopt the SAE ARP 4761 and 4754 standards for the application of system safety and software safety.

Superseded

3.21 RTCA DO-178C Software Considerations in Airborne Systems and Equipment Certification, alternatively known as EUROCAE ED-12C, is recognised by these NAAs as acceptable means of compliance for aviation software assurance. This standard satisfies the associated NAA's Airworthiness Requirements (generally Federal Aviation Regulation (FAR) or Certification Specification (CS) 2x.1301 and 2x.1309).

3.22 RTCA DO-178C is not intended to be implemented in isolation, and acceptability is based on integration with other requirements of the relevant Airworthiness Code. Consequently, civil authorities undertake software safety and software assurance within an ecosystem of design requirements, standards and associated guidance material. A visual example of the ecosystem defined by civil authorities, in this case for FAR 25, is provided in Annex A. Intelligent application of the ecosystem as utilised by the NAA/MAA will meet the airworthiness design requirements detailed in this chapter.

3.23 For legacy aircraft undergoing design changes related to software, the guidance material listed below provides the conditions for the continued use of older versions of the standard:

(a) EASA AMC 20-115D – "Airborne Software Development Assurance Using EUROCAE ED-12 and RTCA DO-178"

(b) FAA AC 20-115D – "Airborne Software Development Assurance Using EUROCAE ED-12 and RTCA DO-178" and FAA AC 00-69 – "Best Practices for Airborne Software Development Assurance Using EUROCAE ED-12( ) and RTCA DO-178()".

Military Aviation Approach

3.24 MIL-HDBK-516 Airworthiness Certification Criteria defines the US DoD aviation software requirements for military systems within Sections 14 and 15 and references various specifications, standards and handbooks as means of compliance. This provides the freedom to utilise military standards such as NATO AOP-52 and the Joint Software Systems Safety Engineering Handbook (JSSSEH) as well as the above civilian standards. This approach facilitates civilian-military interfaces such as the application of MIL-STD-882E for system safety and DO-178C for software assurance.

3.25 The UK MoD term for aviation software is 'Safety Related Programmable Elements' as detailed within DEF STAN 00-970 PART 13 Issue 13. The software safety and software assurance approach to 'Safety Related Programmable Elements' is further detailed within DEF STAN 00-55 Requirements for the Safety of Programmable Elements in Defence Systems, which is the source for software related airworthiness requirements. While DEF STAN 00-970 adopts the civilian standards as a means of compliance for both system safety and software assurance, it allows legacy platforms to retain compliance against DEF STAN 00-55 Issue 2. Note also that the underlying UK MoD system safety requirements do not fully align with Defence requirements, and can require considerable tailoring prior to application, as detailed in Section 2, Chapter 2.

3.26 The application of the preceding military approaches requires tailoring and prior agreement with the Authority. Software standards such as JSSSEH and DEF STAN 00-55 are largely guidance material and, without intelligent application, may result in incomplete objective evidence that can be used to demonstrate that appropriate software safety and software assurance has been achieved.

Superseded

ADDITIONAL AVIATION SOFTWARE GUIDANCE

3.27 Development assurance of AEH requires similar considerations to aviation software. The assignment of a DAL is equally applicable to specific AEH hazards, hence a DAL, commensurate with the worst credible failure condition identified, is utilised to establish the required AEH development assurance safety objectives. Until further guidance can be provided within this Manual, designers are to refer to EUROCAE ED-80/RTCA DO-254 Design Assurance Guidance for Airborne Electronic Hardware as an acceptable means of compliance for development assurance of AEH. Additional guidance is available within EASA CM–SWCEH-001 Issue 01 Revision 02 Development Assurance of Airborne Electronic Hardware issued 08 January 2018 and FAA Order 8110.105A Simple and Complex Electronic Hardware Approval Guidance issued 05 April 2017.

3.28 Further guidance on implementing the aviation software requirements prescribed in this chapter and addressing AEH design assurance can be provided by the chapter sponsor.

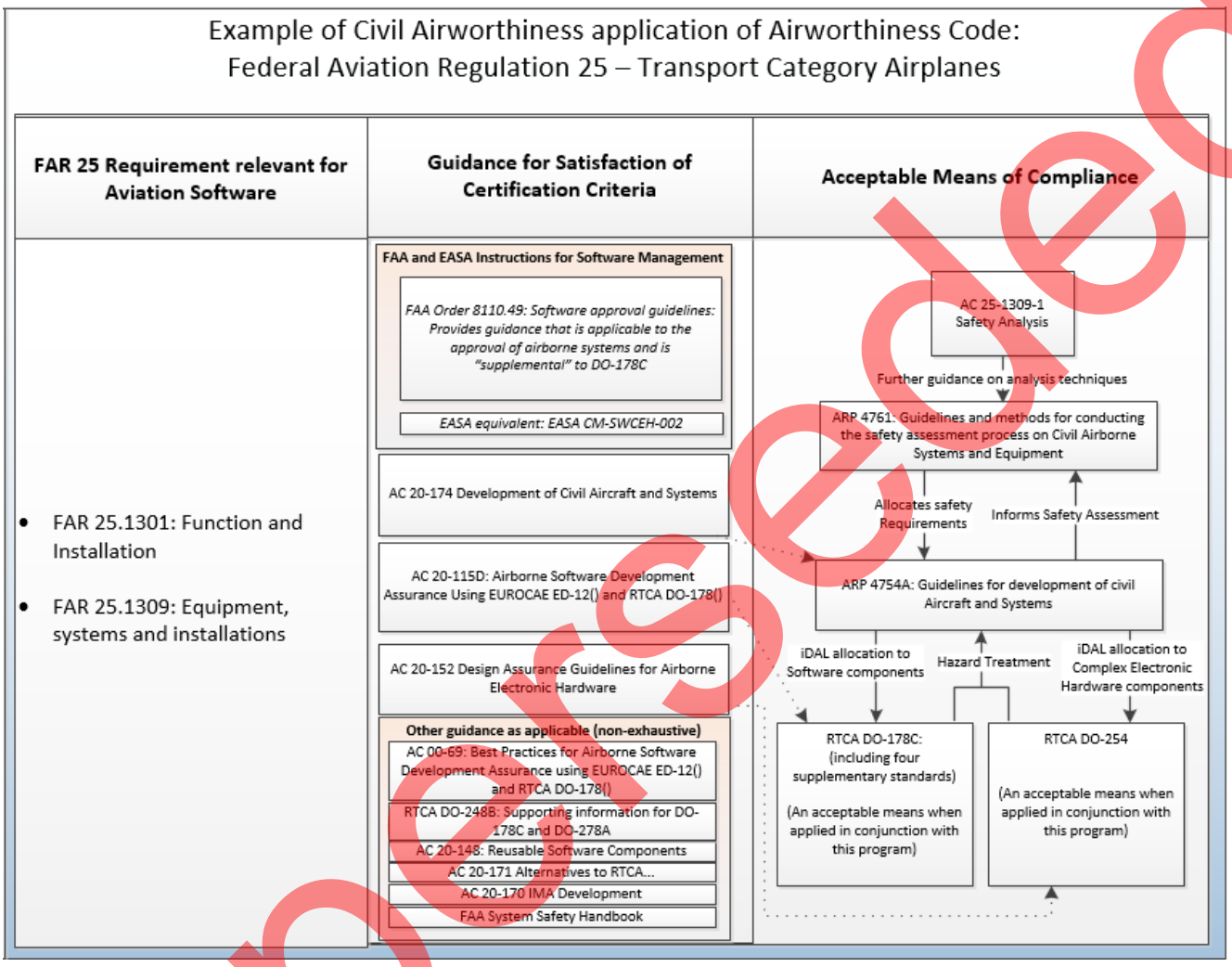
Annex:

A. Ecosystem of FAA/EASA activities for production of safe aviation software

Superseded

ANNEX A ECOSYSTEM OF FAA/EASA ACTIVITIES FOR PRODUCTION OF SAFE AVIATION SOFTWARE

ECOSYSTEM OF FAA/EASA ACTIVITIES FOR PRODUCTION OF SAFE AVIATION SOFTWARE



Superseded

ELECTROMAGNETIC ENVIRONMETNAL EFFECTS

INTRODUCTION

4.1 The interaction of electrical and magnetic fields emanating from systems within an aircraft, or the interaction between the aircraft and the external environment, can create unwanted effects, which may adversely impact the safe flight of Defence aircraft. Protection of Defence aircraft designs against Electromagnetic Environmental Effects (E3) therefore must be established as part of initial design, subsequent modification, ongoing maintenance, and any time an aircraft or system experiences a change in its Configuration, Role or operating Environment (CRE).

4.2 Authority recognised Airworthiness Codes prescribed by National and Military Airworthiness Authorities (NAAs and MAAs) include airworthiness design requirements for E3, together with extensive guidance in most instances. However, the NAA/MAA prescribed design requirements require tailoring to:

(a) account for the unique CRE of Defence aircraft;

(b) ensure that the requirements are applied in a pragmatic manner, particularly for non-safety related systems and equipment; and

(c) ensure that radiation hazards posed by aircraft emitters comply with relevant Australian legislation and Defence policy requirements.

Scope

4.3 This Chapter presents the Authority prescribed airworthiness design requirements for Defence aircraft E3. The Chapter also presents design requirements to establish E3 protection of mission systems.

Structure of this chapter

4.4 The application of E3 design requirements prescribed by NAAs and MAAs is not straightforward. While many of the E3 requirements prescribed by NAAs and MAAs ensure that E3 will not impact safe flight, the approaches adopted often differ and may not adequately account for Defence's CRE. To account for these differences in E3 protection approaches, this Chapter presents design requirements utilising the following elements of E3 described in MIL-STD-464C Electromagnetic Environmental Effects Requirements for Systems as the basis, with tailoring to satisfy Defence's CRE where required:

(a) Margins

(b) Intra-system Electromagnetic Compatibility (EMC)

(c) Subsystems and equipment Electromagnetic Interference (EMI)

(d) Electrostatic charge control

Superseded

(e) External Radio Frequency (RF) Electromagnetic Environment (EME)

(f) High-power microwave (HPM) sources and Electromagnetic Pulse (EMP)

(g) Lightning

(h) Electromagnetic radiation hazards

(i) Electrical bonding

(j) External grounds

(k) Life cycle E3 hardness

(l) Emanations Security (EMSEC)

(m) System radiated emissions (Emissions Control (EMCON))

(n) Electromagnetic spectrum supportability.

4.5 This chapter presents the Authority prescribed E3 airworthiness design requirements for Defence aircraft acquisitions and modifications, and E3 design requirements for supporting Defence aircraft capability. Finally, the Chapter provides guidance associated with E3 management and planning.

DEFENCE AIRCRAFT ACQUISITION E3 DESIGN REQUIREMENTS

4.6 To ensure that adequate E3 protection is afforded for the Defence aircraft's CRE, this section presents Authority prescribed E3 airworthiness design requirements applicable to Defence aircraft acquisitions.

Margins

4.7 **Design Requirement (Essential).** *The application of margins during Defence aircraft E3 certification programs must satisfy the E3 airworthiness design requirements prescribed in an Authority recognised Airworthiness Code.*

4.8 **Design Requirement (Essential).** *A 16.5 dB margin (of the maximum no-fire stimulus (MNFS) threshold) must be applied to all electro-explosive devices that could impact safe operation of Defence aircraft.*

4.9 Margins are applied during E3 certification of aircraft systems and equipment to ensure that the equipment will continue to function when exposed to the proposed external and intra-system EME. Margins allow for inherent differences in equipment build quality and installations, and variability in test methods and outcomes. Authority recognised Airworthiness Codes presented in Section 1 Chapter 3 ensure that adequate margins are applied during E3 certification programs. However, these Codes (particularly civil Codes) may not cover the application of margins to Electrically Initiated Devices (EIDs), which is fundamental to ensuring that EIDs do not pose a hazard to safe flight (or personnel safety) when exposed to the associated EME, or do not suffer functional loss due to such exposure.

Superseded

4.10 **Design Requirement (Essential).** *Intra-system EMC, subsystems and equipment EMI, and electrostatic charge control certification for Defence aircraft must satisfy the E3 airworthiness design requirements prescribed in an Authority recognised Airworthiness Code.*

4.11 All Authority recognised Airworthiness Codes prescribe requirements for intra-system EMC, subsystems and equipment EMI, and electrostatic charge control. These requirements ensure that there should be no adverse impact to safe flight due to intra-system interference or electrostatic discharge.

External RF EME

4.12 **Design Requirement (Essential).** *The EME in which a Defence aircraft will operate must be established, and the associated High Intensity Radiated Field (HIRF) environment certification levels must be applied to the design.*

4.13 The ability of Defence aircraft to operate safely in the external EME must be ensured through appropriate design, testing and analysis. Authority recognised Airworthiness Codes define HIRF environments for 'normal' aircraft operations (fixed and rotary wing). However, the 'normal' HIRF environments in these Codes and associated E3 standards may not provide adequate levels of protection for Defence's CRE. The adequacy of the certified EME must be confirmed through comprehensive evaluation of the actual EME the Defence aircraft is expected to operate within. Further, the civil Codes generally do not define a HIRF environment for shipboard operations, but may define requirements based on special conditions where the aircraft is intended to operate to/from ships. Consequently, where Defence civil-derivative aircraft are required to operate to/from or in the vicinity of RAN vessels, an understanding of the HIRF environment certification (and influence over any design considerations if possible) must be established to support compliance demonstration for the Defence CRE.

High Power Microwave (HPM) Sources and Electromagnetic Pulse (EMP)

4.14 **Design Requirement (Essential).** *Where a requirement exists for High Power Microwave (HPM) and Electromagnetic Pulse (EMP) protection for Defence aircraft, the design requirements for HPM and EMP prescribed in MIL-STD-464C must be met.*

4.15 HPM emitters (such as microwave weapons and counter measures) or EMP (eg nuclear blast effects) may adversely affect safety of flight systems. Given the nature of these threats, civil Airworthiness Codes do not include protection against these hazards. Where a capability need exists for Defence aircraft to be protected against HPM and/or EMP effects, compliance with relevant MIL-STD-464C requirements must be demonstrated.

Lightning

4.16 **Design Requirement (Essential).** *Lightning strike certification for Defence aircraft must satisfy the E3 airworthiness design requirements prescribed in an Authority recognised Airworthiness Code.*

Superseded

4.17 **Design Requirement (Essential).** *Ordnance fitted to Defence aircraft must satisfy the requirements prescribed in MIL-STD-464C to remain safe during and after experiencing a lightning strike.*

4.18 Authority recognised Airworthiness Codes prescribe requirements for lightning effects that ensure safe flight for Defence aircraft following lighting strikes. However, the civil Codes and associated standards do not prescribe requirements for lightning protection of ordnance, which must be demonstrated through the application of the requirements prescribed in MIL-STD-464C.

Electromagnetic Radiation Hazards

4.19 Radio Frequency (RF) emissions from Defence aircraft may pose hazards to fuel, ordnance and personnel. Military Airworthiness Codes and supporting standards prescribe requirements for protection against Hazards of Electromagnetic Radiation to Fuel (HERF) and to Ordnance (HERO). Civil Airworthiness Codes do not consider HERO, and only consider HERF in an oblique manner. Finally, both civil and military Codes either do not explicitly cover Hazards of Electromagnetic Radiation to Personnel (HERP) or rely on radiation protection standards that do not satisfy Australian legislation.

4.20 **Design Requirement (Essential).** *Explosive ordnance intended for use on Defence aircraft must be certified as safe for operation and integration onto the aircraft, in the applicable EME, in accordance with the requirements prescribed in DEOP 115.*

4.21 HERO design requirements are prescribed by MAAs to ensure that ordnance is capable of withstanding specified EME and remain both safe and functional. Defence policy on HERO, published by EODIV in DEOP 115 Defence Electro-explosive Hazards Manual, details the approved Defence approach to classification and certification for safe storage, transportation, handling, maintenance and operation of ordnance. DEOP 115 refers to MIL-STD-464 to define the EME that Defence EO must be certified within. Normally, EODIV assesses each proposed item of EO for HERO and issues appropriate data to platform engineering organisations to support integration onto Defence aircraft. Note that ordnance safety also depends on compliance with all other elements of E3 protection described in this chapter. Consequently, in addition to DEOP 115 requirements, all other applicable Authority prescribed E3 design requirements must be met.

4.22 **Design Requirement (Essential).** *Safe distances from fuel sources during fuelling operations, including during air-air refuelling, defined in accordance with the requirements of USAF TO 31Z 10-4 or NAVSEA OP 3565 Vol 1, must be established for RF emitters fitted to Defence aircraft.*

4.23 Authority approved military Airworthiness Codes prescribe requirements to ensure that fuel will not be ignited by aircraft radiated EME. The Authority approved civil Codes are not as comprehensive. MIL-STD-464C prescribes these requirements via references to USAF TO 31Z-10-4 Electromagnetic Radiation Hazards and NAVSEA OP 3565 (Vol 1) Electromagnetic Radiation Hazards to Personnel, Fuel and Other Flammable Material. In particular, identification and treatment of hazards associated with RF emitters during refuelling operations (including air-air refuelling where relevant) is essential. Note that fuel safety also depends on compliance with all other elements of E3 protection described in this chapter. Consequently, in addition to defining appropriate safe distances, all other applicable Authority prescribed E3 design requirements must be met.

4.24 **Design Requirement (Essential).** *Aircraft occupants must not be exposed to RF levels that exceed the thresholds defined in the Defence Radiation Safety Manual.*

Superseded

4.25 Radio frequency emissions from Defence aircraft may pose hazards to personnel. Designers must ensure that Defence aircraft systems and equipment do not expose occupants to RF levels that exceed the specifications on Radiation Hazards contained in the Defence Radiation Safety Manual. Designers must also analyse emissions from Defence aircraft systems and establish appropriate safe distances to ensure that persons outside the aircraft are not exposed to RF levels that exceed the specifications on Radiation Hazards contained in the Defence Radiation Safety Manual.

Electrical bonding

4.26 **Design Requirement (Essential).** *Defence aircraft systems, subsystems and equipment must be electrically bonded to satisfy the requirements of an Authority recognised Airworthiness Code.*

4.27 **Design Requirement (Recommended).** *Metal interfaces in Defence aircraft systems, subsystems and equipment should be electrically bonded to provide a 2.5 mΩ bond in accordance with MIL-STD-464C.*

4.28 Appropriate electrical bonding minimises E3 susceptibility of aircraft systems and equipment. Electrical bonding is common practice in aircraft wiring and electrical/electronic systems and equipment, and is comprehensively covered in Authority recognised Airworthiness Codes. While the actual bond resistance between systems and equipment that will ensure safe flight is not impacted is system dependent, a 2.5 mΩ bond between metal surfaces has been demonstrated to ensure that RF potentials between systems and equipment will not adversely affect system operation.

External grounds

4.29 **Design Requirement (Essential).** *Defence aircraft must be able to be connected to an external ground.*

4.30 External grounding of the airframe is used to control current flow and static charge/discharge paths when the aircraft is on the ground. External grounding minimises hazards associated with personnel electric shock, and inadvertent ignition of ordnance, fuel and flammable vapours.

Life cycle E3 hardness

4.31 **Design Requirement (Recommended).** *Requirements for maintaining the E3 hardness of Defence aircraft during in-service operations and support should be established using the guidance in MIL-STD-464C.*

4.32 Authority recognised Airworthiness Codes may not prescribe requirements to maintain the E3 hardness levels established by the initial design, so they are not compromised by inadequate life-cycle support including maintenance, repair, surveillance and corrosion control. These requirements are comprehensively covered in MIL-STD-464C, and provide specific consideration of E3 issues when formulating ICA and when determining the most appropriate support program to manage in-service support E3 issues.

E3 DESIGN REQUIREMENTS FOR CHANGES TO TYPE DESIGN

4.33 In addition to the applicable airworthiness design requirements prescribed in the preceding section of this Chapter, this section presents Authority prescribed E3 airworthiness design

Superseded

requirements for changes to Defence aircraft type design, noting that any change must be considered within the context of the Defence aircraft's CRE.

4.34 **Design Requirement (Essential).** *Modifications to Defence aircraft systems, subsystems and equipment must comply with the E3 airworthiness design requirements prescribed in the aircraft's certification basis.*

4.35 **Design Requirement (Recommended).** *Modifications to Defence aircraft systems, subsystems and equipment should comply with the E3 design requirements prescribed in MIL-STD-464C.*

4.36 To avoid the introduction of EMI/EMC hazards, particularly for safety of flight systems and equipment, design changes to Defence aircraft must not compromise the extant the level of E3 hardness established by the certified aircraft design. Potential impact on E3 hardness should be identified during development of changes to Defence aircraft designs, and design treatments must be implemented for any reduction. Where reasonably practicable, changes to Defence aircraft designs should incorporate E3 protection improvements by following the design principles in MIL-STD-464C.

4.37 **Design Requirement (Essential).** *Requirements for maintaining the E3 hardness of Defence aircraft modifications during in-service operations and support must be established using the guidance in MIL-STD-464C.*

4.38 E3 hardness levels established during design of Defence aircraft modifications must not be compromised by inadequate life-cycle support including maintenance, repair, surveillance and corrosion control. Requirements for maintaining E3 hardness throughout the life-cycle of Defence aircraft are comprehensively covered in MIL-STD-464C, and provide specific consideration of E3 issues when formulating ICA and when determining the most appropriate support program to manage in-service support E3 issues.

CAPABILITY DESIGN REQUIREMENTS

4.39 Compliance with all of the Authority prescribed E3 airworthiness design requirements in this Chapter would ensure that mission systems will not be impacted by E3. However, this level of compliance would come with substantial costs in both design and certification effort that may not be commensurate to the risk associated with mission system failure. For example, depending on the Defence aircraft mission profiles, mission systems may not be exposed to the potential worst-case EME, and verifying that mission systems can operate within this EME would not be warranted. Consequently, considerable tailoring of the requirements is likely to be warranted to ensure that mission systems will function correctly when required, without imposing the additional verification evidence requirements associated with safety of flight systems and equipment compliance.

4.40 This section presents guidance on tailoring that may be appropriate for ensuring that mission systems in Defence aircraft are not adversely impacted by E3.

Margins

4.41 As previously discussed, margins allow for inherent differences in equipment build quality and installations, and variability in test methods and outcomes. The application of margins, however, imposes additional testing and/or design development costs to ensure that the margin is achieved. For mission systems, these additional requirements are only likely to be warranted where the loss of capability would be unacceptable if the certified EME is exceeded.

Superseded

4.42 **Capability Design Requirement.** *Margins for mission systems should be established on the basis of the criticality of the system to the achievement of the required capability.*

External EME

4.43 Since missions systems, by definition, are not critical to safe flight, requiring these systems to be capable of withstanding the EME defined in MIL-STD-464C (or the EME associated with Defence's role and operating environment) may not be warranted. To ensure that an appropriate EME is defined for mission systems, the Defence aircraft mission profiles should be evaluated to establish whether mission systems that support a critical capability will be exposed to the worst-case EME established for the aircraft's CRE. Where this is the case, the mission systems should be verified as being capable of continued operation when exposed to this EME. Otherwise, the mission systems' ability to withstand the potential EME that they are likely to be exposed to should be verified.

4.44 **Capability Design Requirement.** *The EME that mission systems should be certified to withstand should be established during design development and compliance verified during design certification.*

4.45 Current civil requirements for 'mission systems', ie those systems not required for safe flight, do not mandate certification to the EME defined in the associated Airworthiness Codes or AMC. For example, the FARs do not prescribe compliance with the requirements for continued functionality in the defined HIRF environments for non-essential systems and equipment. Consequently, this equipment may only be certified to withstand an EME as low as 1 V/m, which is clearly below a level that would be acceptable for Defence mission systems. Where verification of mission systems EME certification was, or is proposed to be, based on civil design requirements, verification activities must be critically evaluated to confirm the EME levels applied to mission systems are appropriate.

Emanations Security (EMSEC)

4.46 EMSEC requirements for Defence are published by the Australian Signals Directorate in Australian Communications – Electronic Security Instructions (ACSI) 71(C). EMSEC does not impact safety of flight, and the need for EMSEC is a capability requirement driven by the Defence aircraft's CRE.

4.47 **Capability Design Requirement.** *Where required, Defence aircraft EMSEC should comply with the requirements of ACSI 71 (D), Annex D.*

System radiated emissions (Emissions Control (EMCON))

4.48 Control of system emissions may be required to support operations in close proximity to other platforms and to limit threat capability detection and tracking. Similar to the requirement for EMSEC, EMCON is a capability requirement driven by the Defence aircraft's CRE.

4.49 Capability Design Requirement. Where required, Defence aircraft EMCON should comply with the requirements of MIL-STD-464C.

Superseded

4.50 EM spectrum approvals for Defence aircraft systems are managed by the Defence Spectrum Office in accordance with the requirements of the Defence Spectrum Manual. Approval of RF spectrum use should be achieved prior to Defence aircraft operations.

4.51 **Capability Design Requirement.** *Defence aircraft EM spectrum approval should be provided in accordance with the requirements of the Defence Spectrum Manual.*

E3 MANAGEMENT AND PLANNING

4.52 While not essential for the achievement of a safe aircraft design from an E3 perspective, Defence experience has demonstrated that a successful E3 certification and control program depends on appropriate and sufficiently detailed planning. Consequently, the Authority recommends the use of an E3 planning document (the E3 Control Program Plan (E3CPP)) to assist designers to achieve an E3 compliant design, while limiting test and analysis overheads to only those required for the specific certification activity under consideration.

4.53 An E3CPP should be developed for all new Defence aircraft acquisitions, and for all Major modifications that could have a substantial impact on E3 certification. The E3CPP should include a description of the following:

(a) the proposed management framework for the E3 control program

(b) the Defence aircraft EME

(c) E3 design and mitigation strategies considered for incorporation or incorporated into the aircraft design

(d) the tests and analyses required to support E3 certification, together with references to any test results

(e) any E3 shortfalls identified, which could not be treated by design, and any associated alternative risk treatment strategies employed.

E3 WHS REQUIREMENTS

4.54 Exposure to radiation emitted by Defence aircraft systems and equipment can result in serious health issues. Defence must comply with Commonwealth WHS legislation for the purposes of ensuring the safety of persons in the workplace. Defence's radiation safety requirements for personnel are prescribed in the Defence Radiation Safety Manual, which requires compliance with the Australian Radiation Protection and Nuclear Safety Act 1998. Additional compliance requirements for Defence are prescribed in the Defence Work Health and Safety Manual, Volume 2, Part 3C, Chapters 1-4. The safety of both aircraft occupants and personnel outside of the aircraft must be ensured and personnel safe distances, defined in accordance with the requirements of the Defence Radiation Safety Manual, must be established for RF emitters fitted to Defence aircraft.

Superseded

4.55 Further guidance on E3 design considerations and the application or tailoring of E3 design requirements for Defence aircraft mission systems and equipment can be provided by the chapter sponsor.

Superseded

HUMAN FACTORS ENGINERING

INTRODUCTION

5.1 The safe design of a system, in part, comes from recognising that the roles and performance of the human components within those systems form part of the design process. This chapter provides guidance on the application of Human Factors Engineering (HFE) design requirements.

5.2 When considering new designs or modifications, the designer should ensure the identification of average human capabilities, and the minimisation of performance requirements which exceed those capabilities, through application of appropriate human factors design requirements. All safe system designs should therefore not only take into account the limitations of people but also build in safeguards to mitigate 'worst credible scenarios' should the limitations be exceeded. The application of HFE considerations in new design or modifications can be broadly separated into two areas:

(a) HFE Considerations in individual System Design, which covers the application of HFE in each aircraft system's design, to optimise normal and worst credible scenario operations; and

(b) HFE Considerations in Systems Integration, which ensures HFE consideration of the workloads placed on personnel when the integrated aircraft system is not operating as intended, in worst credible scenarios.

Scope

5.3 The ADF Human Factors Engineering design requirements are applicable to aircraft acquisition and major modification projects and minor changes to type design. This chapter presents the Authority prescribed design requirements for HFE.

HUMAN FACTORS ENGINEERING STANDARDS APPLICATION

5.4 Design Requirement (Essential). HFE for Defence aircraft designs must satisfy the requirements of one of the following standards:

(a) US DoD MIL-STD-1472 G Human Engineering

(b) UK military standard DEF STAN 00.25 Human Factors for Design of Equipment

(c) the applicable FAA/EASA regulations for the aircraft type.

5.5 While HFE design considerations for civil certified platforms can be found embedded within the various systems' design requirements within FAR/EASA regulations, most commercial manufacturers still apply the requirements defined in MIL-STD-1472 for HFE certifications of airborne systems under the FAA. Consequently, for civil certified platforms, the commercial HFE standards are either the FARs/JARs, and/or MIL-STD-1472, depending on the scope of the new design.

Superseded

5.6 Design Requirement (Essential). Methods and techniques for assessing hazards arising from HFE considerations must be integrated within the System Safety Program.

5.7 HFE considerations are an essential element of a successful System Safety Program, and must therefore be assessed together with hardware and software safety considerations. Further guidance on the considerations for System Safety Programs is detailed in Section 2, Chapter 2 – System Safety.

5.8 Design Requirement (Recommended). HFE considerations should be formally captured and documented.

5.9 A consolidated document that captures all HFE considerations, HFE tools and methods utilised provides a beneficial management and coordination tool. The complexity of the document is commensurate to the relative platform risks, the weapon system's configuration, role and environment, design complexity and HFE coordination required. Commonly within Defence, a Human Engineering Program Plan (HEPP) is generated as the consolidated document.

ADDITIONAL HUMAN FACTORS ENGINEERING GUIDANCE

5.10 Further guidance on Human Factors Engineering design considerations can be provided by the chapter sponsor.

Superseded

CRASH PROTECTION

INTRODUCTION

6.1 Aircraft that comply with Contemporary Crash Protection Design Requirements (CCPDR) reduce the likelihood of crew and passengers suffering fatalities and serious injuries in the event of a survivable crash. MAO's are required to to maintain a system to 'eliminate or otherwise minimise risk SFARP to personnel on aircraft that do not meet CCPDR' and to 'evaluate Defence aircraft against the CCPDR'. To support the ongoing risk management of ADF aircraft, the Authority prescribes the CCPDR applicable to Defence aircraft. Where previously specific DASR were used to enforce compliance to the CCPDR, the contemporary understanding of risk management in aircraft crash protection has evolved such that it may be managed like other risks to personnel safety. This chapter is intended to represent the technical requirements, with DASP Volume 3 Chapter 6.10 Aircraft Crash Protection representing the additional information and guidance on the quantification and communication of crash protection risk.

Scope

6.2 This chapter presents the Authority prescribed CCPDR.

CONSIDERATIONS FOR DEFINING CCPDR

6.3 This section discusses the basis for the Authority prescribed CCPDR in terms of the design principles associated with crash protection, the definition of 'benign' and 'challenging' environments and the broad application of civil and military Authority approved Airworthiness Codes, to provide context for the application of the CCPDR.

Aircraft Crash Protection Design Principles

6.4 A successful crash protection strategy is one that protects occupants from fatalities and serious injury in potentially survivable crashes while limiting capability reductions, implementation costs and additional maintenance overheads. To optimise occupant protection, a systems approach to crash protection is necessary, encompassing the following five key crash protection principles:

(a) **Aircraft crash resistance.** The ability of the aircraft structure to provide a protective shell for occupants in the event of a survivable crash is a key factor for occupant survival. The structure and equipment should be designed to allow deformation in a controlled, predictable manner so that forces imposed upon the occupants will be tolerable while still maintaining a protective shell. Restraint of concentrated (or high) mass items should prevent parts of the aircraft becoming projectiles within the cabin during a crash creating crushing or blunt trauma hazards (eg engines/transmission/blades coming through the roof, internally mounted items dislodging, and so on).

Superseded

(b) **Occupant retention.** Protection should be afforded to occupants by the aircraft's retention system, which comprises the seat, seat retention and occupant restraint system assembly. The retention system plays a major role in preventing occupant contact injuries associated with body parts flailing into aircraft structures and plays a predominant role in energy absorption (seating design).

(c) **Cargo and equipment retention.** Restraint systems should be designed to control cargo and ancillary equipment displacements that are hazardous to occupants during a survivable crash.

(d) **Post-crash emergency escape provisions.** Occupants should retain the ability to rapidly evacuate the aircraft during non-crash ground emergencies, and after survivable crash conditions. The ability to escape is impacted by aircraft deformation, lighting, escape hatches, and so on.

(e) **Post-crash injury prevention.** The crash protection system should be designed to prevent post-crash environmental hazards that could seriously injure occupants. For hazards which cannot be prevented, the crash protection system should protect occupants from exposure to the hazards. Potential post-crash environmental hazards include fire, toxic fumes and submersion. This principle can be extended to include equipment that can improve post-crash survivability after the crash sequence. Such equipment includes first aid kits, survival kits and emergency locator transmitters.

6.5 These five design principles are addressed by a number of civil and military crash protection design requirements and associated standards. While not considered within the context of the discussion in this Chapter, Aeronautical Life Support Equipment (ALSE) is also a key contributor to crash protection, in particular post-crash injury prevention. Section 5 Chapter 2 of this manual presents the Authority prescribed design requirements for ALSE and should be read in conjunction with this Chapter.

'Benign' and 'Challenging' environments

6.6 Civil and military design requirements for aircraft crash protection are structured to accommodate the differences between civil and military operations. In the case of civil operations, the prescribed requirements define a level of crash protection that is appropriate for normal operations in civil aircraft, including consideration of the likelihood of a survivable crash occurring. Military requirements, on the other hand, recognise that due to military operations the likelihood of crashes occurring in broad terms, and therefore the likelihood of a survivable crash occurring, for some military aircraft will be higher than for most civil aircraft. Therefore, the military requirements prescribe more demanding crash protection attributes. The determination of the appropriate suite of crash protection design requirements to apply to a particular Defence aircraft type requires consideration of the circumstances in which a survivable crash is most likely to occur. The application of an appropriate suite of CCPDR to a Defence aircraft type is informed by establishing whether the aircraft will operate in a 'benign' or 'challenging' environment.

6.7 The following paragraphs discuss the characteristics that would normally be considered as constituting operations in a challenging environment for fixed and rotary wing aircraft. For the purposes of determining which CCPDR apply to a particular Defence aircraft type, if the aircraft operations do not include the characteristics associated with challenging environments, then the operations may be considered 'benign'.

Superseded

6.8 **Fixed wing.** For fixed wing aircraft, the take-off and landing phases of flight carry an inherently higher risk of crashing[1]. Where military aircraft are routinely conducting tactical take-off / landing, and therefore the likelihood of survivable and non-survivable crashes is increased above the civil norm, this is considered a 'challenging' CP environment. While low level tactical flight also increases the likelihood of crashes, the prevalent crashes under these circumstances are expected to be non-survivable and, therefore, are not considered 'challenging' from a CP perspective.

6.9 **Rotary wing.** The rotary wing 'challenging' environment includes all helicopter operations where the likelihood of a crash is higher than that which would be expected in normal civil operations. This includes regular low level tactical flight[2], extended hover near to the ground, regular ship landings under conditions not experienced during similar civil operations (eg ship landing sites with limited clearance, high sea states), and so on.

6.10 Determining whether an aircraft will operate in a 'benign' or 'challenging' environment will operate in a 'benign' or 'challenging' environment establishes the appropriate suite of CCPDR to apply to Defence aircraft, Consequently, an assessment of the proposed Defence aircraft operations to ascertain the expected environment from a crash protection perspective should be completed, prior to conducting a CP evaluation. The characterisation of operations as 'routine' or 'regular' in the above environment definitions would be expected where such operations form part of the Defence aircraft's defined roles and would therefore normally be included in the SOIU. Where operations usually considered as constituting a 'challenging' environment are only rarely conducted (for example a few times during the aircraft's life and only under contingency approval), these operations would not normally warrant consideration as a 'challenging' environment for CP purposes.

Authority approach to establishing CCPDR for benign and challenging operating environment contexts

6.11 This section discusses the Authority's approach to establishing CCPDR for benign and challenging environment contexts through the application of crash protection design requirements prescribed in Authority recognised Airworthiness Codes.

6.12 **Benign Environment Contemporary Crash Protection Standard.** Civil operations are, unsurprisingly, conducted in an operating environment that is consistent with the definition of a benign crash protection environment context as described in paragraphs 6 through 10. Consequently, the design requirements prescribed in Authority recognised civil Airworthiness Codes present an appropriate benchmark against which to assess Defence aircraft crash protection attributes for operations in benign environments. The FAA's Federal Aviation Regulations (FARs) and EASA's Certification Specifications (CSs) present airworthiness design requirements for fixed wing aircraft (Parts 23 and 25) and rotary wing aircraft (Parts 27 and 29). These design requirements cover the elements of crash protection such as seat crashworthiness, fire protection, emergency provisions and cargo retention without explicitly identifying the requirements as 'crash protection'. Although similar in most respects, the FAR and CS crash protection requirements do have some differences. The Authority has determined that the contemporary civil crash protection design requirements for benign operating environments are defined by the most demanding of requirements between the FARs and CSs. Operational regulations can also impose airworthiness design requirements beyond those in the design FARs/CSs (ie Parts 23, 25, 27 and 29). Some of these additional requirements may be relevant to crash protection, for example the requirement for additional safety equipment, improved flammability performance of cabin interiors and so on. Consequently, the Authority has included in the benign contemporary crash protection standard the relevant requirements from FAR Parts 91, 121, 125 and 135 and the applicable Commercial Air Transport (CAT) operational regulations

Superseded

in European Commission Regulation (EU) No 965/2012 Laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.

6.13 Summarising, the Authority prescribes the sum of the following as the benign environment contemporary crash protection standard applicable to Defence aircraft:

(a) Airworthiness design requirements provided by the latest amendment of the:

1. relevant FAR or CS, plus

2. the alternate relevant FAR or CS requirements that provide an increase to the level of crash protection, plus

(b) Additional design requirements specified in the operational regulations of the:

1. relevant FAR, CS, EU CAT, plus

2. the alternate relevant FAR, CS, EU CAT requirements that provide an increase to the level of crash protection.

6.14 Annex A presents the elements of the above standards that constitute the Authority prescribed benign environment contemporary crash protection standard.

6.15 **Challenging Environment Contemporary Crash Protection Standard.** The US DoD handbooks and standards follow a systems approach to crash protection, and in this respect are superior to the civil standards. Furthermore, they recognise the likely differences in crash scenarios between military and civil aircraft, and specifically cater for the military environment. Therefore, the military standards account for operations that constitute the challenging environment as defined at paragraphs 6 through 10, and present an appropriate benchmark against which to assess Defence aircraft crash protection attributes for operations in challenging environments. MIL-STD-1290A Light Fixed and Rotary-Wing Aircraft Crash Resistance is the prevalent crash protection standard for US military platforms and the Authority has determined that it provides adequate coverage to form the basis of the Authority prescribed challenging environment contemporary crash protection standard for Defence aircraft. Nevertheless, there are a number of crash protection elements, such as head injury criteria (HIC) and femur loads and equipment requirements prescribed in operational FARs, and EU Regulation 965/2012, where the civil design requirements are more onerous than those prescribed in MIL-STD-1290A. Consequently, the Authority has prescribed the challenging environment crash protection standard for Defence aircraft as the requirements prescribed in MIL-STD-1290A supplemented by the relevant requirements from FARs/CSs and civil operational regulations.

6.16 Summarising, the Authority prescribes the sum of the following as a contemporary challenging environment contemporary crash protection standard applicable to Defence aircraft:

(a) design requirements prescribed in the latest amendment of MIL-STD-1290A, plus

(b) HIC and femur load requirements of FAR or CS 2X.562 (whichever is most demanding) using the FAR/CS appropriate for the type and size of aircraft, plus

(c) equipment requirements specified in the most demanding operational regulations of the FARs and EU CAT.

6.17 Annex B presents the elements of the above standards that constitute the Authority prescribed challenging environment contemporary crash protection standard.

Superseded

6.18 Importantly, the challenging environment contemporary crash protection standard (ie MIL-STD-1290A) has been specifically developed for rotary wing and light fixed wing aircraft operating contexts and associated crash scenarios. Therefore, a straightforward application of the challenging environment standard to large fixed wing aircraft is not appropriate. Consequently, the Authority has determined that the challenging environment contemporary crash protection standard for large fixed wing aircraft is the Annex A benign environment crash protection standard (FAR/CS 25 plus relevant operational regulations) supplemented by applicable Annex B challenging environment crash protection standard (ie MIL-STD-1290A) requirements, where the Annex B requirements are more onerous. Applicable requirements from MIL-STD-1290A will be defined based on the characteristics of the aircraft that are represented in the MIL-STD and for which an improvement in the level of crash protection could be expected through application of the more onerous requirement. For example, restraining items of mass to the load cases in MIL-STD-1290A may not afford an improvement in crash protection if the structure of large fixed wing aircraft will disintegrate well before these loads are reached in a challenging environment survivable crash scenario.

DEFENCE AIRCRAFT CRASH PROTECTION DESIGN REQUIREMENTS

6.19 This section presents the Authority prescribed CCPDR for Defence aircraft. Unlike most other Authority prescribed design requirements in the DASDRM, the CCPDR prescribed in this section are applicable to Defence aircraft throughout the aircraft's life-of-type, not just for acquisition.

6.20 **Design Requirement (Essential).** *The following Authority prescribed CCPDR must be applied to Defence aircraft:*

(a) *Aircraft operating in a benign environment*

1. *Small fixed wing and rotary wing Defence aircraft having a civil or civil-derived certification pedigree – the CCPDR defined in Annex A to this Chapter.*

2. *Small fixed wing and rotary wing Defence aircraft having a military certification pedigree – the CCPDR defined in Annex A to this Chapter or the CCPDR in Annex B to this Chapter (noting that compliance with Annex B exceeds the benchmark requirements).*

3. *Large fixed wing aircraft Defence aircraft having a civil, civil-derived or military certification pedigree – the CCPDR defined in Annex A to this Chapter.*

(b) *Aircraft operating in a challenging environment*

1. *Small fixed wing and rotary wing aircraft having a civil or civil-derived certification pedigree - the CCPDR defined in Annex A to this Chapter **supplemented by** applicable requirements defined in Annex B, where the Annex B requirements are more onerous; or the CCPDR in Annex B to this Chapter.*

2. *Small fixed or rotary wing aircraft having a military certification pedigree – the CCPDR defined in Annex B to this Chapter.*

3. *Large fixed wing Defence aircraft having a civil, civil-derived or military certification pedigree – the CCPDR defined in Annex A to this Chapter **supplemented by** applicable requirements defined in Annex B, where the Annex B requirements are more onerous.*

6.21 Crash protection afforded to occupants of Defence aircraft is maximised by aircraft designs that comply with the suite of CCPDR as defined in Annex A or B, as applicable. Where the CCPDR

Superseded

have not been, or cannot be reasonably practicably met by Defence aircraft designs, the identification of shortfalls and communication and treatment of associated risks to personnel safety should be undertaken in accordance with the requirements of DASP Volume 3 Chapter 6.10 Aircraft Crash Protection.

6.22 The determination of CCPDR for large fixed wing aircraft that operate in a challenging environment will be dependent on the type of operations being undertaken. The CCPDR for these aircraft types and operations is likely to be a combination of Annex A plus requirements from Annex B (ie MIL-STD-1290A) that are determined to be applicable to the likely survivable crash scenarios for that aircraft type. However, in the absence of an analysis of the operating environment to establish which crash protection features warrant additional consideration or the adoption of more onerous requirements, the Authority is unable to prescribe generic CCPDR for these aircraft.

CHANGES TO TYPE DESIGN AFFECTING CRASH PROTECTION

6.23 **Design Requirement (Essential).** *Changes to the type design must not degrade the level of crash protection afforded by the extant Defence aircraft design.*

6.24 **Design Requirement (Essential).** *Changes to the type design must meet the relevant requirements of the Authority prescribed CCPDR.*

6.25 Proposed changes to the aircraft configuration must retain the extant level of crash protection of the aircraft and satisfy the relevant Authority prescribed CCPDR. The Authority will not ordinarily approve a design change that results in a reduced level of crash protection from that inherent in the extant aircraft baseline. However, where such a reduction is unavoidable (eg due to a capability imperative), the shortfall must be assessed in terms of the impact on safety versus capability gains of the proposed change to establish whether reasonably practicable controls to either eliminate or further minimise the risk can be implemented. Informed risk treatment decisions can only be made if the evaluation presents a robust assessment of the magnitude of the reduction, together with options for reasonably practicable risk treatment to improve the level of crash protection. Design changes must also be evaluated against the relevant CCPDR and reasonably practicable design features that improve the level of crash protection afforded to occupants must be incorporated. Any shortfalls against the CCPDR must be managed in accordance with the requirements of DASR AMC1 to 21.A.17A.

NOTE

Where a design change (either Minor or Major) impacts the crash protection attributes of a Defence aircraft, the change must be evaluated against the CCPDR and a determination made regarding whether compliance with the CCPDR has been achieved.

CRASH PROTECTION REQUIREMENTS FOR CARGO CARRIAGE

6.26 While the civil and military crash protection design requirements and standards referred to above include considerations for cargo carriage, these considerations are often not contextualised for the Defence operational environment. The cargo load restraint standards prescribed in Section 5 Chapter 5 of this manual have been developed specifically for the Defence military context of strategic and tactical airlift, both with and without passengers. The military standards also consider required capability outcomes and the necessary flexibility to achieve operational goals. None of these aspects feature in considerations for civil load restraint (particularly for cargo) and therefore direct

Superseded

application of the civil requirements may not be appropriate for Defence aircraft, depending on the aircraft's role and type of operations.

2.27 Prior to adopting the cargo restraint requirements in Section 5 Chapter 5 as the CCPDR for a particular aircraft type, the designer must confirm with the capability manager that the context of application of the cargo load restraint requirements is consistent with the proposed Defence aircraft operational context. Further, any additional risk treatments (such as operational treatments to limit exposure of passengers to injury/death as a result of loss of cargo restraint in a survivable accident) must be considered and implemented where reasonably practicable, including the adoption of the civil-like cargo carrying requirements where practicable.

6.28 For some Defence aircraft the context of operations is not consistent with the context for which the Section 5 Chapter 5 requirements were derived. For example, the KC-30A will occasionally be required to carry Defence cargo, but the loading/unloading of this cargo is not usually required to be conducted in adverse operational conditions requiring rapid access and ease of transfer. Under these circumstances, the extant civil requirements remain appropriate as the basis for the CCPDR related to cargo carriage.

6.29 For the purposes of cargo carriage, the military cargo load restraint standards prescribed in Section 5 Chapter 5 represent the minimum standard for load restraint in military aircraft, and may be adopted in lieu of the cargo carriage restraint requirements prescribed in CCPDR subject to the following design requirements, and the considerations for carriage of cargo under DASR.ACD.

6.30 ***Design Requirement (Essential).*** *For Defence aircraft undertaking military cargo carrying operations[3], restraint of cargo must satisfy the load restraint limits for the cargo type and transportation mode prescribed in DASDRM Section 5 Chapter 5 Aerial Delivery of Materiel.*

6.31 ***Design Requirement (Essential).*** *For Defence aircraft undertaking civil-like cargo carrying operations, restraint of cargo must satisfy the load restraint limits for the cargo type and transportation mode prescribed in Authority recognised civil Airworthiness Codes.*

ADDITIONAL CRASH PROTECTION GUIDANCE

6.32 Further guidance on implementing the crash protection requirements prescribed in this chapter can be provided by the chapter sponsor.

Annexes:

A. Benign Environment Contemporary Crash Protection Standard

B. Challenging Environment Contemporary Crash Protection Standard

Superseded

ANNEXES

ANNEX A - BENIGN ENVIRONMENT CONTEMPORARY CRASH PROTECTION STANDARD

BENIGN ENVIRONMENT CONTEMPORARY CRASH PROTECTION STANDARD

As discussed in Section 2 Chapter 6, the Authority prescribed benign environment contemporary crash protection standard is the sum of the following:

(a) Airworthiness design requirements provided by the latest amendment of the:

1. relevant FAR or CS, plus
2. the alternate relevant FAR or CS requirements that provide an increase to the level of crash protection, plus

(b) Additional design requirements specified in the operational regulations of the:

1. relevant FAR, CS or EU CAT, plus
2. the alternate relevant FAR, CS or EU CAT requirements that provide an increase to the level of crash protection.

Table 6–A–1 lists the airworthiness design requirement clauses from the FARs/CSs that provide crash protection requirements. Tables 6–A–2 through 6–A–5 list the operational regulation clauses from the FARs and EU CAT. Note that some of the clauses in each table also include design requirements that are not related to crash protection. Section 5 chapter 2 of this manual should also be consulted to include relevant Authority prescribed requirements for Aeronautical Life Support Equipment (ALSE).

Table 6–A–1 FAR/CS 23, 25, 27 and 29 Crash Protection Clauses

Subject	FAR/CS 23 (1)	FAR/CS 25 (1)	FAR/CS 27 (1)	FAR/CS 29 (1)
Subpart C – Structure				
Emergency Landing Conditions				
General	23.561(2)	25.561	27.561	29.561
Emergency landing dynamic conditions	23.562	25.562(2)	27.562	29.562
Structural ditching provisions		25.563	27.563	29.563
Subpart D – Design and Construction				
General				
Fitting Factors	23.625	25.625	27.625	29.625

Superseded

Landing Gear				
General	23.721	25.721		
Shock absorption tests	23.723	25.723	27.723	29.723
Limit drop test	23.725		27.725	29.725
Ground load dynamic tests	23.726			
Reserve energy absorption drop test	23.727		27.727	29.727
Personnel and Cargo Accommodations				
Pilot compartment doors		25.772		
Fuselage doors	23.783	25.783	27.783	29.783
Seats, berths, safety belts and harnesses	23.785(3)	25.785(2)	27.785	29.785
Stowage compartments	23.787	25.787	27.787	29.787
Retention of items of mass in passenger and crew compartments and galleys		25.789		
Passenger information signs and placards	23.791	25.791		
Floor surfaces		25.793		
Emergency Provisions				
Ditching		25.801	27.801	29.801
Emergency evacuation	23.803	25.803		29.803
Flight crew emergency exits	23.805		27.805	29.805
Emergency exits	23.807	25.807	27.807	29.807
Emergency exit arrangement		25.809(2)		29.809
Emergency egress assist means and escape routes		25.810		
Emergency exit marking	23.811	25.811		29.811
Emergency lighting	23.812	25.812		29.812

Superseded

Emergency exit access	23.813	25.813[4]		29.813
Width of aisle	23.815	25.815		29.815
Maximum number of seats abreast		25.817		
Lower deck service compartments (including galleys)		25.819		
Fire Protection				
Fire extinguishers	23.851	25.851		29.851
Compartment interiors	23.853	25.853	27.853[5]	29.853
Cargo or baggage compartments	23.855[2]	25.855	27.855	29.855
Thermal/Acoustic insulation materials	23.856[2]	25.856		
Flammable fluid fire protection	23.863	25.863	27.863	29.863
Fire protection: systems		25.869		
Subpart E – Powerplant				
Fuel System				
Fuel system crash resistance			27.952	29.952
Fuel tanks: general	23.963	25.963[4]	27.963	29.963
Fuel tank installations	23.967[3]	25.967		
Fuel tank filler connection			27.973	29.973
Fuel tank vents			27.975	29.975
Fuel tank ignition prevention		25.981[2]		
Fuel System Components				
Fuel system lines and fittings	23.993	25.993	27.993	29.993
Fuel system components	23.994	25.994		
Fuel valves		25.995		29.995
Fuel strainer or filter	23.997	25.997	27.997	29.997
Fuel system drains	23.999	25.999	27.999	29.999

Superseded

Oil System				
Oil tanks		25.1013		
Oil lines and fittings		25.1017		
Exhaust System				
General		25.1121		29.1121
Powerplant Fire Protection				
Flammable Fluids		25.1185		
Firewalls		25.1191		29.1191
Cowling and nacelle skin	23.1193	25.1193		29.1193
Subpart F – Equipment				
Electrical Systems and Equipment				
Electrical system fire and smoke protection	23.1359			29.1359
Electrical supplies for emergency conditions		25.1362		
Safety Equipment				
General	23.1411	25.1411	27.1411	29.1411
Safety Belts			27.1413	29.1413
Ditching equipment	23.1415	25.1415	27.1415	29.1415
Megaphones		25.1421		
Public address system		25.1423		
Miscellaneous Equipment				
Protective breathing equipment		25.1439		29.1439
Fire protection for oxygen equipment	23.1451			
Protection of oxygen equipment from rupture	23.1453	25.1453		
Subpart G – Operating Limitations and Information				

Superseded

Marking and Placards				
Miscellaneous markings and placards	23.1557	25.1557	27.1557	29.1557
Safety equipment	23.1561	25.1561	27.1561	29.1561

Notes:

(a) As at the latest amendment status, with exception of FAR/CS 23 for which FAR 23 Amdt. 23-63 and CS 23 Amendment 4 apply (DASDRM Section 1 Chapter 3 refers).

(b) CS clause should be supplemented with the FAR clause

(c) FAR clause should be supplemented with the CS clause

(d) Resultant clause should be a combination of both the FAR and CS clause

(e) Supplement with the FAR/CS 29 clause

Table 6–A–2 FAR 91 – General Operating and Flight Rules – Applicable to All Operations

Subject	**Clause**
Subpart B – Flight Rules	
Flight crewmembers at stations	91.105
Use of safety belts, shoulder harnesses, and child restraint systems	91.107
Subpart C – Equipment, Instrument, and Certificate Requirements	
Instrument and equipment requirements	91.205
Emergency locator Transmitters	91.207
Subpart F – Large and Turbine-Powered Multiengine Airplanes and Fractional Ownership Program Aircraft	
Survival equipment for overwater operations	91.509
Emergency equipment	91.513
Passenger information	91.517
Passenger briefing	91.519
Shoulder Harness	91.521
Flight attendant requirements	91.533

Superseded

Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff and landing	91.535
Subpart G – Additional Equipment and Operating Requirements for Large and Transport Category Aircraft	
Emergency exits for airplanes carrying passengers for hire	91.607
Materials for compartment interiors	91.613

Table 6–A–3 FAR 121 – Operating Requirements: Domestic, Flag and Supplemental Operations – Applicable for Large Passenger Transport Aircraft

Subject	FAR 121	EU CAT
Subpart G – Manuals Requirements		
Manual contents	121.135	
Subpart J – Special Airworthiness Requirements		
Cabin interiors	121.215	
Internal doors	121.217	CAT.IDE.A.215
Fire precautions	121.221	CAT.IDE.A.250
Proof of compliance with 121.221	121.223	
Location of fuel tanks	121.229	
Fuel system lines and fittings	121.231	
Fuel lines and fittings in designated fire zones	121.233	
Fuel valves	121.235	
Oil lines and fittings in designated fire zones	121.237	
Lines and fittings	121.259	
Vent and drain lines	121.261	
Fire-extinguishing system materials	121.271	
Carriage of cargo in passenger compartments	121.285	CAT.OP.MPA.160

Superseded

Subpart K – Instrument and Equipment Requirements		
Emergency equipment	121.309	CAT.OP.MPA.170
Additional emergency equipment	121.310	CAT.IDE.100 CAT.IDE.A.210 CAT.IDE.A.255 CAT.IDE.A.275
Seats, safety belts, and shoulder harnesses	121.311	CAT.IDE.A.205 CAT.IDE.A.210
Materials for compartment interiors	121.312	
Miscellaneous equipment	121.313	CAT.IDE.A.215
Fuel Tanks	121.316	
Passenger information requirements, smoking prohibitions, and additional seat belt requirements	121.317	CAT.OP.MPA.170 CAT.IDE.A210
Public address system	121.318	CAT.IDE.A.180 CAT.IDE.A.270
Crewmember interphone system	121.319	CAT.IDE.A.175
Protective breathing equipment	121.337	CAT.IDE.A.245
Emergency equipment for extended over-water operations	121.339	CAT.IDE.A.285
Emergency flotation means	121.340	CAT.IDE.A.285
Emergency equipment for operations over uninhabited terrain areas	121.353	CAT.IDE.A.305
Subpart T – Flight Operations		
Briefing passengers before takeoff	121.571	CAT.OP.MPA.170
Briefing passengers: Extended overwater operations	121.573	
Retention of items of mass in passenger and crew compartments	121.576	CAT.OP.MPA.230
Stowage of food, beverage, and passenger service equipment during airplane movement on the surface, takeoff and landing	121.577	

Superseded

Exit seating	121.585	
Carry-on baggage	121.589	CAT.OP.MPA.160
Emergency Medical Equipment	121.803	CAT.IDE.A.220 CAT.IDE.A.225

Table 6–A–4 FAR 125 – Certification and Operations: Airplanes Having a Seating Capacity of 20 or More Passengers or a Maximum Payload Capacity of 6000 Pounds or More: and Rules Governing Persons On Board Such Aircraft – Applicable to Passenger, Cargo or Mixed Load Aircraft of the Sizes Described

Subject	Clause
Subpart E – Special Airworthiness Requirements	
Cabin Interiors	125.113
Fire Precautions	125.119
Location of Fuel Tanks	125.127
Fuel System Lines and Fittings	125.129
Fuel Valves	125.133
Oil Valves	125.137
Firewall construction	125.145
Engine accessory section diaphragm	125.149
Lines and fittings	125.157
Carriage of Cargo in Passenger Compartments	125.183
Demonstration of Emergency Evacuation Procedures	125.189
Subpart F – Instrument and Equipment Requirements	
Emergency Equipment Requirements	125.207
Emergency Equipment: Extended Overwater Operations	125.209
Seat and Safety Belts	125.211
Miscellaneous Equipment	125.213
Passenger Information	125.217

Superseded

Subpart J – Flight Operations	
Briefing of Passengers Before Flight	125.327
Stowage of Food, Beverage, and Passenger Service Equipment During Airplane Movement on the Surface, Takeoff, and Landing	125.333
Subpart M – Continued Airworthiness and Safety Improvements	
Flammability Reduction Means	125.509

Table 6–A–5 FAR 135 – Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft – Applicable to All Operations

Subject	Clause
Subpart B – Flight Operations	
Carriage of cargo including carry-on baggage	135.87
Briefing of passengers before flight	135.117
Emergency and emergency evacuation duties	135.123
Use of safety belts and child restraint systems	135.128
Exit seating	135.129
Subpart C – Aircraft and Equipment	
Public address and crewmember interphone systems	135.150
Fire extinguishers: Passenger-carrying aircraft	135.155
Emergency equipment: Extended overwater operations	135.167
Additional airworthiness requirements	135.169
Materials for compartment interiors	135.170
Shoulder harness installation at flight crewmember stations	135.171
Emergency equipment requirements for aircraft having a passenger seating configuration of more than 19 passengers	135.177
Additional emergency equipment	135.178

Additional Guidance Material

Superseded

The FAA issues additional guidance material in the form of Advisory Circulars (ACs). EASA Acceptable Means of Compliance (AMC) perform a similar function. These provide a means to demonstrate compliance with certain clauses of the FARs/CSs. AMC is issued with the CSs and frequently refers to related FAA ACs. The FAA ACs are separate documents. The following ACs are relevant to crash protection.

Fixed Wing Aircraft

(a) AC 25-9A–Smoke Detection, Penetration and Evacuation Tests and Related Flight Manual Emergency Procedures covers smoke and smoke dispersal requirements.

(b) AC 25-16–Electrical Fault and Fire Prevention and Protection provides acceptable means to minimise the potential and effects of electrical faults, overheat, smoke and fire.

(c) AC 25-17A–Transport Airplane Cabin Interiors Crashworthiness Handbook is a general AC covering the applicable cabin interior crashworthiness requirements of FAR 25. This AC does not include crashworthiness aspects such as fuel tank/system design, fuselage deformation and prevention of post-crash fires, but does incorporate guidance in seat/restraint system design, fire extinguishing, safety equipment and oxygen equipment. Appendix 3 of this AC provides a list of applicable FAA cabin interior crashworthiness ACs.

(d) AC 23.562-1–Dynamic Testing of Part 23 Airplane Seat/Restraint Systems and Occupant Protection provides guidance for demonstrating compliance with the FARs applicable to the dynamic testing of aircraft seats and occupant protection (e.g. 23.562, 23.785, and 23.787).

(e) AC 25.562-1B–Dynamic Evaluation of Seat Restraint Systems and Occupant Protection on Transport Airplanes provides guidance for demonstrating compliance with the FARs applicable to the dynamic testing of aircraft seats and occupant protection (e.g. 25.562, 25.785, 25.787, and 25.789).

(f) AC 25.783-1A–Fuselage Doors, Hatches and Exits provides guidance for demonstrating compliance with the structural and functional safety standards of fuselage doors and their operating systems.

(g) AC 25.785-1B–Flight Attendant Seat and Torso Restraint System Installations provides design requirements particular to flight attendant seating.

(h) AC 25.803-1–Emergency Evacuation Demonstrations discusses both full scale testing and analysis / test combinations as a means of compliance with FAR 25.803.

(i) AC 25.807-1–Uniform Distribution of Exits provides guidance for demonstrating compliance with the FAR 25.807(c) requirement of uniform distribution of required emergency exits.

(j) AC 25.812-1A/-2–Floor Proximity Emergency Escape Path Marking Systems provides guidance for demonstrating compliance with the FAR 25.812. AC 25.812-2 specifically discusses photo luminescent elements.

(k) AC 25.853-1–Flammability Requirements for Aircraft Seat Cushions provides guidance for demonstrating compliance with the requirements of the FARs pertaining to flammability of aircraft seat cushions.

(l) AC 25.856-1–Thermal / Acoustic Insulation Flame Propagation Test Method Details provides guidance for demonstrating compliance with 25.856a and part VI of Appendix F to FAR 25.

Superseded

(m) AC 25.856-2A–Installation of Thermal/Acoustic Insulation for Burnthrough Protection provides guidance for demonstrating compliance with FAR 25.856b and part VII of Appendix F to FAR 25.

(n) AC 25.994-1–Design Considerations to Protect Fuel Systems during a Wheels-Up Landing provides guidance for demonstrating compliance with the requirements of FAR 25.994 and protecting fuel system components located in the engine nacelles and the fuselage.

(o) AC 20-135–Powerplant Installation and Propulsion System Component Fire Protection Test Methods, Standards and Criteria provides guidance for demonstrating compliance with the powerplant fire protection requirements of FARs 23 through 29 and testing to define if a material is 'fireproof' or 'fire resistant'.

(p) AC 120-47–Survival Equipment for use in Overwater Operations provides information regarding the survival equipment that should be carried during aircraft extended overwater operations.

Rotary Wing Aircraft

(a) The FAA has produced ACs 27-1B – Certification of Normal Category Rotorcraft and 29-2C–Certification of Transport Category Rotorcraft. These ACs provide guidance for demonstrating compliance with certification requirements in FARs 27 and 29 respectively. This inherently includes consideration for all the crash protection principles covered in this Chapter. For instance, AC 27-1B contains subsections providing guidance for demonstrating compliance with seat/restraint system dynamic impact testing, fire protection, structural strength requirements, etc.

Superseded

ANNEX B - CHALLENGING ENVIRONMENT CONTEMPORARY CRASH PROTECTION STANDARD

CHALLENGING ENVIRONMENT CONTEMPORARY CRASH PROTECTION STANDARD

(a) As discussed in Section 2 Chapter 6, the Authority prescribed challenging environment contemporary crash protection standard is the sum of the following:

1. design requirements provided by the latest amendment of MIL-STD-1290A, plus
2. HIC and femur load requirements of FAR or CS 2X.562 (whichever is most demanding) using the FAR/CS appropriate for the type and size of aircraft, plus
3. equipment requirements specified in the most demanding operational regulations of the FARs, CSs and EU CAT.

(b) This annex presents additional detail on the application of the components of the challenging environment CCPDR.

Design requirements specified in MIL-STD-1290A

(c) MIL-STD-1290A presents a contemporary military crash protection standard requiring minimal supplementation, other than from design standards referred to within MIL-STD-1290A including:

1. MIL-DTL-27422D–Detail Specification for the Tank, Fuel, Crash-Resistant, Ballistic-Tolerant, Aircraft
2. MIL-S-58095A–Seat System: Crash-Resistant, Non-Ejection, Aircrew, General Specification for
3. MIL-S-85510–Seats, Helicopter Cabin, Crashworthy, General Specification for
4. MIL-H-83796B–Hose Assembly, Rubber, Lightweight, Medium Pressure, General Specification for
5. MIL-PRF-83282D–Hydraulic Fluid, Fire Resistant
6. MIL-DTL-25579F–Hose Assembly, High Temperature, Medium Pressure General Specification for
7. MIL-H-38360B–Hose Assemblies, High Temperature, High Pressure, 3000 psi, Hydraulic and Pneumatic.

(d) JSSG 2010-7 and the Aircraft Crash Survival Design Guide provide additional detailed guidance on the application of crash protection design requirements in the military context.

Head Injury Criteria and Femur Load Requirements

(e) MIL-STD-1290A must be supplemented with FAR or CS 2X.562 (whichever is more demanding) for measuring head injury and femur loads in the design of seats. The associated FAA advisory circulars (ACs 27-1B, 29-2C, 23.562-1 or 25.562-1B as applicable) provide additional guidance on means of compliance for these crash protection design features.

Operational Regulations

(f) MIL-STD-1290A must be supplemented with the operational regulation clauses of the FARs and EU CAT that provide crash protection requirements detailed in Annex A to Section 2

Superseded

Chapter 6. These operational requirements are equally applicable to, and form part of, the Authority prescribed challenging environment contemporary crash protection design standard.

Superseded

FIRE PROTECTION

INTRODUCTION

7.1 Fires represent one of the most severe hazards that can occur in an aircraft. Fire protection measures are therefore essential design characteristics in aircraft that minimise the likelihood of a fire occurring and, where a fire does occur, ensure that the crew are alerted to the presence of and can effectively combat the fire, and if necessary take action to land and evacuate the aircraft.

7.2 For the majority of Defence aircraft the fire protection design requirements prescribed in Authority recognised civil and military Airworthiness Codes defined in Section 1 of this manual satisfy prescribed safety objectives for Defence aircraft fire protection. However, modifications to civil aircraft to provide military capability may be inconsistent with the 'normal' approach to fire protection adopted within civil Codes, and therefore the level of fire protection afforded by the design may be compromised. Consequently, the Authority prescribes fire protection airworthiness design requirements to supplement the civil Codes and provide a basis for verifying the acceptability of Defence aircraft fire protection measures.

Scope

7.3 This Chapter presents Authority prescribed airworthiness design requirements for Defence aircraft fire protection.

DEFENCE AIRCRAFT FIRE PROTECTION DESIGN REQUIREMENTS

7.4 Where a Defence civil-derivative aircraft is substantially unmodified from that originally certified by an Authority recognised National Airworthiness Authority (NAA), compliance with an Authority recognised civil Airworthiness Code defined in Section 1 will satisfy the prescribed fire safety objectives for Defence aircraft. Military aircraft certified by an Authority recognised Military Airworthiness Authority (MAA) are designed from first principles to provide the required capability and all associated systems and equipment needed to support military functions will have been subjected to the associated military Code fire protection design requirements for that aircraft type. Any modifications to military aircraft that are subject to MAA certification, will similarly be certified under this 'first principles' approach. Consequently, for Defence military aircraft compliance with the fire protection design requirements in an Authority recognised military Airworthiness Code satisfies prescribed fire safety objectives for Defence aircraft.

7.5 **Design Requirement (Essential).** *Defence aircraft must satisfy the fire protection design requirements prescribed in an Authority recognised Airworthiness Code as defined in Section 1 of this manual.*

7.6 Notwithstanding compliance with a civil Airworthiness Code, civil-derivative aircraft that are modified to provide military capabilities may have additional equipment and systems fitted in areas of the aircraft where such equipment is not usually accommodated. Civil-derivative aircraft modifications may also include equipment that does not comply with the materials properties usually

Superseded

applied to aircraft equipment to provide adequate fire protection. In this case, compliance with the fire protection design requirements of an Authority recognised civil Airworthiness Code may not afford a level of fire safety that satisfies prescribed safety objectives. Where a Defence civil-derivative aircraft configuration includes modifications from the original certified baseline design to include systems/equipment that is not 'normal' (ie similar in function and hazards) to the original certified aircraft design, the Authority prescribed fire protection airworthiness design requirements defined in this chapter must also be met.

CIVIL-DERIVATIVE AIRCRAFT MODIFIED FOR DEFENCE PURPOSES

The Authority's approach to prescribing fire protection design requirements for Defence civil-derivative aircraft

7.7 The Authority prescribed fire protection design requirements ensure that military-unique modifications to civil-derivative aircraft do not unacceptably degrade the inherent level of fire protection afforded by the original civil certified design. Fire protection design requirements prescribed in civil Airworthiness Codes may not account for the modified design; for example, high powered electrical and electronic equipment installed in compartments which do not usually accommodate such equipment may pose ignition hazards that are not adequately treated within civil airworthiness design requirements for electrical and electronic bays. To verify the acceptability of the fire protection measures in a Defence civil-derivative aircraft, any unique features must be analysed to evaluate their impact on the level of fire protection afforded by the design.

7.8 To ensure that airworthiness design requirements for fire protection account for the potential hazards that may be present as a result of military modifications to Defence civil-derivative aircraft, the Authority prescribes design requirements based on the fundamental fire protection concepts of fire prevention, fire detection and fire suppression. Modified Defence civil-derivative aircraft designs may pose the following hazards that could compromise the adequacy of fire protection design requirements in civil Codes:

(a) unusual military configurations not normally present in civil aircraft designs that introduce new or additional fuel sources, eg the use of commercial equipment to provide a military capability that is manufactured from materials that do not comply with contemporary fire prevention standards for civil aviation (compromised fire prevention);

(b) the presence of ignition sources, eg high power electrical/electronic equipment, that are unlikely to be found in civil aircraft systems, or are located in areas of the aircraft where ignition sources are not normally found (compromised fire prevention);

(c) the absence of a means by which the presence of fire is notified to the crew in a modified area of the aircraft, eg lack of fire detection due to no requirement for detection in civil aircraft electrical and electronic bays (compromised fire detection); and

(d) a lack of access to the compartment in which the modified equipment is located, which may impede evaluation and suppression of a fire (compromised fire suppression).

7.9 Any one or combination of the hazards associated with modifications in Defence civil-derivative aircraft identified in paragraph 7.8 may result in a marked degradation of fire protection requiring treatment. Consequently, each aspect of proposed modifications must be evaluated to clearly establish if fire protection attributes have been compromised and if additional risk treatment is warranted. This section presents the Authority prescribed fire protection airworthiness design requirements for fire prevention, detection and suppression in Defence civil-derivative aircraft.

Superseded

7.10 Fire prevention is usually achieved in civil Airworthiness Codes by treating hazards associated with ignition and fuel. Fire prevention may be achieved through combustible materials hazards reduction (flammability), installation hazards reduction (reducing ignition sources), isolation and separation (of fuel and ignition sources), ventilation, cooling, drainage, electrical bonding and lightning protection. The effectiveness of two of these fire prevention elements, namely materials flammability and reducing or isolating/separating ignition and fuel sources, may be reduced as a result of modifications in civil-derivative aircraft.

7.11 Fire protection requirements in civil Airworthiness Codes rely on the behaviour of materials in the presence of an ignition source (limiting the potential for the material to ignite) and the ability of the material to sustain a fire once it is ignited (self-extinguishing properties). However, military-unique modifications in civil-derivative aircraft may include equipment containing materials that do not comply with contemporary flammability requirements and may compromise the extant fire protection afforded by the aircraft design. Such shortfalls may not be unacceptable to Defence, provided the overall fire protection of the aircraft is not compromised. Consequently, the Authority has prescribed the following design requirement to ensure such equipment is identified, and its impact on fire protection is assessed.

7.12 **Design Requirement (Essential).** *Material properties of equipment used in modifications to Defence civil-derivative aircraft must comply with the applicable flammability requirements prescribed in an Authority recognised Airworthiness Code.*

NOTE

A 'systems' approach is required to establish if the level of fire protection afforded by modified Defence civil-derivative aircraft satisfies fire safety objectives. This consists of identifying additional hazards posed by the design (ie fuel and ignition sources), then determining whether the extant fire detection and suppression is adequate or if additional detection and/or suppression is warranted. Consequently, non-compliance with the materials flammability requirements may not require resolution through design change to incorporate compliant materials, but may be adequately treated through enhanced (or existing) fire detection and suppression.

7.13 Military-unique modifications in civil derivative aircraft may also include ignition sources in locations on an aircraft where such sources are not normally present, or where the ability to isolate/ separate the ignition source from fuel is limited, which may increase the likelihood of ignition. Such configurations may undermine the basis of, or impose additional fire hazards not accounted for in, the civil Codes (for example, the configuration may now be considered an electrical and electronic bay (EE bay) and fire protection considerations may therefore be limited). The impact on fire safety associated with changes to potential ignition sources, particularly where the source cannot be isolated or separated from fuel sources, must be evaluated. Consequently, the Authority has prescribed the following airworthiness design requirement to ensure that ignition sources introduced by military-unique modifications to Defence civil-derivative aircraft do not unacceptably compromise fire safety.

7.14 **Design Requirement (Essential).** *Where modifications in Defence civil-derivative aircraft include ignition sources that are not normally found in that location on civil certified aircraft (and therefore potentially are not accounted for within a civil Airworthiness Code), the level of fire safety in the presence of the ignition source must be demonstrated, through a systems safety analysis, to meet prescribed fire safety objectives.*

Superseded

7.15 Fire detection provides the crew with notification of a potential fire. The detection method may use a purpose-designed smoke and/or fire detector system or an indirect means such as visual monitoring or smell. In either case, the means used must provide notification to the crew of a fire with adequate time to respond to and extinguish the fire before it becomes established. Civil aircraft fire detection requirements are predicated on the ability of materials, which comply with contemporary flammability requirements, to be self-extinguishing once the ignition source is removed or, where this is not possible, to provide the crew with sufficient time to conduct effective fire suppression actions. However, fire detection systems may not be required for certain types of hidden compartments in civil aircraft (for example, civil Airworthiness Codes do not normally require fire detection in EE bays).

7.16 The effectiveness of fire detection in modified Defence civil-derivative aircraft may be compromised where the properties of materials reduce the time between ignition and a fire becoming established, or the modification impacts the effectiveness of the detection means implemented in the original civil design for that compartment or area of the aircraft (for example, additional ignition sources that increase the likelihood of a fire). Consideration of fire detection in addition to that normally required through compliance with the civil Codes would only be required where the military-unique modification resulted in an 'unusual' configuration within a compartment of the aircraft where a fire is unlikely to be detected via other means (eg vision or smell). For example, fitment of electrical equipment in hidden or inaccessible compartments not normally fitted with this equipment may pose additional ignition hazards that require treatment through fitment of purpose-designed fire detection.

7.17 Fire detection in Defence civil-derivative aircraft designs must ensure that notification of ignition is provided with adequate time for the crew to undertake the required fire suppression actions (for example, removal of power from equipment). Consequently, the following fire detection design requirement is prescribed by the Authority.

7.18 **Design Requirement (Essential).** *Modified compartments of Defence civil-derivative aircraft may result in the presence of materials or additional ignition sources not normally located in that compartment on civil certified aircraft. In these cases, the means of detecting a fire must be verified as providing adequate notification to the crew, or purpose-designed fire detection that complies with the following must be fitted:*

(a) *MIL-HDBK-516C, Section 8.4.7 Fire Detection, and Section 8.4.20 Detection and Control of Overheating, or*

(b) *DEF STAN 00-970 Section 4.26.24 Fire Detection and Warning.*

Fire suppression

7.19 Fire suppression may be provided through indirect or purpose-designed means. Indirect fire suppression is afforded through timely notification of a fire and crew action to remove the ignition source, which in turn extinguishes the fire. Purpose-designed fire suppression, on the other hand, provides the crew with the ability to directly combat a fire, usually through the application of an extinguishing agent. Purpose-designed fire suppression may be required where the time taken to alert the crew to an ignition, and for the ignition source to be removed, exceeds the time that the fire prevention measures remain effective, or where the fuel and/or ignition sources cannot be removed (eg engine bays).

Superseded

7.20 Fire suppression requirements in the civil Airworthiness Codes may not take into account unusual features of a military modification in inaccessible compartments of Defence civil-derivative aircraft (for example, materials that are not self-extinguishing following removal of the ignition source). Consequently, the Authority has prescribed the following fire suppression design requirement.

7.21 **Design Requirement (Essential).** *The ability of crew to remove sources of ignition following notification of a fire must be verified as providing effective fire suppression in modified inaccessible compartments of Defence civil-derivative aircraft, or purpose-designed fire suppression that complies with the following NAA airworthiness design requirements must be fitted:*

(a) ***USAF.*** *MIL-HDBK-516C, Section 8.4 Fire and Hazard Protection, or*

(b) ***UK MoD.*** *DEF STAN 00-970, Section 4.26 Fire Precautions.*

Fuel tank ignition prevention and flammability

7.22 Fire protection design requirements for civil aircraft, particularly large fixed wing aircraft (ie FAR 25 and CS 25) include requirements for fuel tank ignition prevention and fuel tank flammability assessment and, for those aircraft where fuel tank flammability exceeds the defined threshold, flammability reduction means. There are a number of circumstances under which compliance with the fuel tank flammability requirements may not be achieved for Defence civil-derivative aircraft (for example, acquisition of used aircraft where retrospective compliance is not required, or an 'administrative' dispensation granted by a civil NAA for military aircraft). Non-compliance with these requirements could lead to an unacceptable degradation in fuel tank fire safety. Consequently, the following design requirement is prescribed by the Authority.

7.23 Design Requirement (Essential). Defence civil-derivative aircraft must comply with requirements for fuel tank ignition prevention and flammability in FAR/CS 25.981, and FAR/CS Part 25 Appendix M Fuel Tank Flammability Reduction Means and Appendix N Fuel Tank Flammability Exposure.

ADDITIONAL FIRE PROTECTION GUIDANCE

7.24 Further guidance on Defence aircraft fire protection requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

SMOKE AND FUMES PROTECTION

INTRODUCTION

8.1 Smoke and fumes in Defence aircraft, particularly from electrical fires which can generate substantial smoke and toxic gases, can rapidly incapacitate crew and passengers. The type and the severity of the event, crew actions and the degree of their success, can all influence the severity of the outcome of smoke and fumes events.

8.2 While the Authority recognised Airworthiness Codes defined in Section 1 of this manual inherently prescribe some smoke and fumes protection requirements, these are not sufficiently detailed to establish the adequacy of smoke and fumes protection for Defence aircraft crew and passengers. For example, the civil Codes largely prescribe smoke and fumes protection requirements on the basis of the aircraft type, while some military Codes prescribe requirements (if any) on the basis of an aircraft's operational role. Consequently, the Authority prescribes airworthiness design requirements for smoke and fumes protection to supplement the Airworthiness Codes and provide a basis for verifying the acceptability of Defence aircraft smoke and fumes protection measures.

Scope

8.3 This Chapter prescribes Authority supplementation to the smoke and fumes protection elements of recognised civil and military Airworthiness Codes. Importantly, the airworthiness design requirements in this Chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

DEFENCE AIRCRAFT SMOKE AND FUMES PROTECTION DESIGN REQUIREMENTS

8.4 Smoke and fumes protection is required to prevent the incapacitation of flight crew and other aircrew, and to protect the breathing of passengers, during smoke and fumes events in Defence aircraft. Smoke and fumes protection is afforded to aircraft occupants through a combination of the use of materials that minimise the generation of smoke and fumes when exposed to fire or heat sources, and the implementation of personal protective measures for occupants, that enable continued safe operation of the aircraft in the presence of smoke and fumes. This chapter only covers the latter of these two aspects. The use of materials that minimise the generation of smoke and fumes is covered in Section 2 Chapter 7 Fire Protection and Section 3 Chapter 8 Electrical Power Systems.

8.5 Defence aircraft smoke and fumes protection requirements are influenced by two primary considerations: the worst case duration of a smoke and fumes event; and the elements of the design that protect the crew and passengers from adverse physiological effects of smoke and fumes. The Authority prescribed smoke and fumes protection design requirements in this Chapter define the basis for establishing the 'worst case smoke and fumes event duration' for Defence aircraft, and whether the design affords an adequate level smoke and fumes protection for:

Superseded

(a) the flight crew responsible for flying the aircraft

(b) 'emergency response crew' (eg crew involved in locating the source, extinguishing fire, aiding passengers with breathing equipment, and so on)

(c) passengers and other crew.

Worst-case smoke and fumes event duration

8.6 The worst-case smoke and fumes event duration is the time taken to identify the source, combat the source and reduce the smoke and fumes to a level where safe flight and landing and passenger safety is not compromised. Civil and military design standards do not prescribe minimum durations for smoke and fumes protection of aircraft occupants. Consequently, the Authority requires that the worst-case smoke and fumes event duration is established, to ensure that smoke and fumes protection measures remain effective throughout a smoke and fumes event.

8.7 **Design Requirement (Essential).** *The worst-case smoke and fumes event duration for a Defence aircraft must be established.*

8.8 An evaluation of the likely sources of smoke and fumes in occupied spaces of Defence aircraft must be conducted, in conjunction with operational representatives, to establish the worst-case smoke and fumes event duration for all aircraft operations. While a minimum smoke and fumes protection 'time' is not prescribed in Authority recognised civil or military Airworthiness Codes, some civil design requirements prescribe requirements to ensure 'breathing protection' for between ten and fifteen minutes. These times are largely based on the requirement to provide supplemental breathing during an emergency descent following loss of aircraft pressurisation, until the aircraft reaches an altitude at which breathing can be sustained. While these timeframes may also represent the worst-case duration of a smoke and fumes event for some aircraft, for others they may be excessive or inadequate.

8.9 The worst-case event duration for a particular Defence aircraft will depend on the configuration, role and operating environment of the aircraft (for example, a helicopter is likely to have a much lower worst-case event duration, given its lower operating altitude and ability to land in many locations, than a large fixed wing aircraft). Nevertheless, recorded smoke and fumes events in civil and military aircraft suggest that a suitable benchmark worst-case event duration is twenty minutes, and this should be adopted where a bespoke duration for a particular Defence aircraft type cannot be established. Where a smoke and fumes event continues beyond twenty minutes duration, the cause of the event is likely to result in a non-survivable accident and smoke and fumes protection for occupants beyond this duration is therefore of little benefit.

Flight crew and emergency response crew smoke and fumes protection

8.10 Flight crew must be able to continue to communicate (with each other, passengers and other external parties, eg ATC) and to safely operate the aircraft, and emergency response crew must be able to conduct emergency response procedures or undertake fire fighting activities, during a smoke and fumes event. The airworthiness design requirements prescribed by other NAAs in Authority recognised Airworthiness Codes do not include smoke and fumes design requirements with sufficient detail to ensure that the adequacy of protective measures can be verified for the Defence aircraft configuration, role and operating environment. Therefore, the Authority has prescribed the following

Superseded

supplementation for flight and emergency response crew smoke and fumes protection in Defence aircraft.

8.11 **Design Requirement (Essential)**. *For the worst-case smoke and fumes event duration, flight crew smoke and fumes protection must provide:*

(a) *clear vision*

(b) *the ability to breathe*

(c) *the ability to safely operate the aircraft*

(d) *the ability to communicate with other crew members and passengers, and to use aircraft radio equipment while protection measures are in use.*

8.12 **Design Requirement (Essential).** *Emergency response crew smoke and fumes protection must provide:*

(a) *clear vision for the worst-case smoke and fumes event duration*

(b) *the ability to breathe for the worst-case smoke and fumes event duration*

(c) *portability, to enable movement about the aircraft and to conduct emergency procedures for fire fighting, for the predicted period of time required to complete the emergency procedure or fight a fire*

(d) *the ability to communicate with other crew members and passengers while protection measures are in use.*

8.13 Inadequate flight crew smoke and fumes protection may result in an otherwise survivable smoke and fumes event becoming catastrophic, if the crew are unable to continue to safely operate the aircraft. Inadequate emergency response crew smoke and fumes protection may result in an initially minor smoke and fumes event becoming an uncontrollable emergency if the crew is unable to respond appropriately to the initial onset of smoke/fumes. The flight and emergency response crew smoke and fumes protection measures in Defence aircraft must be evaluated and the adequacy of crew breathing, vision, aircraft operation and communication must be verified for the worst-case smoke and fumes event duration.

8.14 Flight and emergency response crew smoke and fumes protection may be provided by evacuation of smoke and fumes from occupied spaces, isolation of the flight deck and/or the provision of protective breathing equipment. Where protective breathing equipment is fitted to Defence aircraft, it is likely to be the primary means by which smoke and fumes protection is afforded for vision and breathing while ensuring the crew can continue to safely operate the aircraft (or combat the source) and communicate where required. When protective breathing equipment is required to satisfy the Authority prescribed design requirements for flight and emergency response crew smoke and fumes protection, the requirements defined in FAR/CS 25.1439 and FAR 121.337 may be used as a guide for verifying the adequacy of the equipment.

Passengers and other crew smoke and fumes protection

8.15 Breathing protection, necessary to sustain life, must be provided to passengers during a smoke and fumes event. While the Authority recognised civil Airworthiness Codes include emergency oxygen supply requirements for passengers, these systems are generally only required to support breathing in the event of depressurisation, and may not be intended to support breathing during a smoke and

Superseded

fumes event. Consequently, such systems are usually designed to afford breathing protection for the minimum time required to descend to an altitude at which breathing can be sustained. The Authority recognised military Airworthiness Codes do not include any design requirements for protection of passenger breathing during smoke and fumes events. Therefore, the Authority has prescribed the following supplementation for passenger smoke and fumes protection in Defence aircraft.

8.16 **Design Requirement (Essential).** *Passenger smoke and fumes protection must provide the ability to breathe for the worst-case smoke and fumes event duration.*

8.17 Passengers and other crew are not normally required to participate in emergency procedures until the aircraft has landed. Nevertheless, passengers must be physically capable of evacuating the aircraft once it is safe to do so and, therefore, cannot become prematurely incapacitated during smoke and fumes events. Passenger breathing protection may be accomplished via supplemental breathing systems, filtration of cabin air or evacuation of smoke and fumes. The passenger smoke and fumes protection measures in Defence aircraft must be evaluated and the adequacy of passenger breathing must be verified for the worst case smoke and fumes event duration. Where evacuation of smoke and fumes from occupied spaces is proposed as the sole means of affording passenger breathing protection, the adequacy of the evacuation means must be evaluated and confirmed to provide the required protection.

Ejection seat aircraft smoke and fumes protection

8.18 Military aircraft fitted with ejection seats often operate at cabin altitudes for which supplemental breathing systems are required to support safe aircraft operation. These systems are likely to satisfy the smoke and fumes protection requirements for breathing protection for the worst-case smoke and fumes event duration, and the ability to communicate. However, the equipment worn by flight crew in these aircraft may not satisfy the requirement to ensure adequate vision is maintained (eg helmet visors may not ensure that clear vision is maintained during a smoke or fumes event). The Authority recognised military Airworthiness Codes do not include requirements for protection against the effects of smoke and fumes in ejection seat aircraft (other than breathing protection).

8.19 Ultimately, the crew has the option of ejecting if smoke and fumes prevent continued safe aircraft operation and, therefore, establishing the worst case smoke and fumes event duration and conducting a detailed evaluation of the smoke and fumes protection afforded by ejection seat aircraft designs is not normally warranted. However, limiting the circumstances under which ejection is necessary provides safety benefits in terms of reducing the likelihood of injury during ejection, and may improve capability through reducing the number of ejection events. Therefore, the Authority has prescribed the following supplementation for crew smoke and fumes protection in Defence ejection seat aircraft.

8.20 **Design Requirement (Recommended).** *Additional smoke and fumes protection measures that potentially limit the circumstances under which an ejection may be required should be identified and implemented where reasonably practicable.*

ADDITIONAL SMOKE AND FUMES PROTECTION GUIDANCE

8.21 Further guidance on implementing the smoke and fumes protection requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

EQUIPMENT ENVIRONMENTAL QUALIFICATION

INTRODUCTION

9.1 During military aircraft operations, avionics and other aircraft equipment is often exposed to extreme environmental conditions. This equipment must continue to function adequately when exposed to these environmental extremes and, therefore, must satisfy the requirements of an appropriate environmental standard.

9.2 While aircraft equipment will normally be designed to comply with either a civil or military environmental standard, the environmental conditions defined within the standard may not reflect those in which the Defence aircraft will operate. Further, civil Airworthiness Codes may not require equipment qualification for operations in the often much harsher environments experienced during military operations. Consequently, the Authority prescribes airworthiness design requirements for environmental qualification of aircraft equipment to supplement the Airworthiness Codes and provide a basis for verifying the acceptability of aircraft equipment for safe operation or to satisfy capability requirements for Defence aircraft.

Scope

9.3 This Chapter prescribes Authority supplementation to the aircraft equipment environmental qualification requirements in recognised civil and military Airworthiness Codes. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

EQUIPMENT ENVIRONMENTAL QUALIFICATION DESIGN REQUIREMENTS

9.4 This section presents the Authority prescribed environmental qualification design requirements, applicable to Defence aircraft, that support safe operation of aircraft equipment when exposed to the expected environmental conditions.

9.5 **Design Requirement (Essential).** *An applicant for an airworthiness instrument must identify, and propose to the Authority for approval, any supplementation to the aircraft's Primary Certification Code necessary to account for the identified environmental conditions.*

9.6 While the majority of Defence aircraft will operate in environmental conditions that are appropriately covered by the requirements prescribed in Authority recognised Airworthiness Codes, some Defence aircraft are required to operate in environments that were not considered by the original designers. Further, qualification testing may identify shortfalls against the requirements of the standard that, while acceptable to the original certifying authority, may not be appropriate for Defence operations. In these cases, the delta between the 'certified' environmental conditions and those in which the aircraft is required to operate, must be established and any associated hazards analysed to determine whether the shortfall(s) poses a risk to safe flight and whether supplementation of the Code is therefore required.

Superseded

9.7 Since Defence airworthiness design requirements establish the basis for safe aircraft operations, they are not usually applied to mission systems whose functions are not required for safe flight. However, environmental qualification is equally applicable to mission systems. After all, verifying that aircraft equipment can safely operate in the identified environmental conditions would be meaningless, without confirmation that the aircraft mission systems can adequately perform their intended functions in those in-flight and on ground environmental conditions where mission systems functionality is required. The following design requirements are not prescribed by the Authority, but should be considered when establishing requirements for Defence aircraft equipment environmental qualification.

9.8 **Capability design requirement.** *The in-flight and on ground environmental conditions in which Defence aircraft mission systems equipment is required to operate should be established.*

9.9 **Capability design requirement.** *Defence aircraft mission systems equipment should be capable of operating in the identified environmental conditions where mission systems functionality is required.*

9.10 The aircraft Type Certification Basis will define the environmental conditions under which aircraft equipment that provides safety related functions is required to operate in flight. These conditions can be used as the basis for establishing the environmental conditions that missions systems may be subjected to and therefore identify, on the basis of the potential impact on capability, whether mission equipment should be able to withstand the same in-flight conditions.

9.11 In addition to establishing the in-flight environmental conditions, Defence aircraft systems may be required to operate for extended periods in ground environmental conditions that may not be suitably catered for in the extant civil and military environmental standards. For example, aircraft systems may need to be operated on the ground to support:

(a) flight crew, mission crew and technician training;

(b) preparation and preservation of aircraft in a state of readiness to support contingency operations; and

(c) fault finding or other maintenance activities.

9.12 The worst-case environmental conditions and time that mission systems and equipment may be required to operate on the ground should be established, and the ability of Defence aircraft equipment to function adequately under these conditions should be evaluated. The results of this evaluation may be used to support decisions on further testing/qualification of aircraft equipment and/or supplemental environmental conditioning on the ground or aircraft environmental control systems enhancements.

9.13 Note that the ground environmental categories defined in DEF (AUST) 5168 Issue 2, The Climatic and Environmental Conditions Affecting the Design of Military Materiel may define Australian unique environments that are not encapsulated in the common civil and military environmental standards. Where relevant, these ground environmental conditions should also be considered when establishing the worst-case environments for Defence aircraft operations.

Superseded

9.14 Further guidance on implementing the equipment environmental qualification requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

DEFENCE LONG RANGE OPERATIONS

INTRODUCTION

10.1 DASR SPA.40 Defence Long Range Operations (DLRO) requires Military Air Operators (MAO) to establish a DLRO management system for Defence aircraft. The AMC and GM to DASR SPA.40 provides the context under which technical assessment of Defence aircraft for suitability to conduct DLRO will be undertaken, and in-service DLRO management requirements will be established, as part of the MAO's risk assessment considerations. DASR SPA.40 applies to fixed wing multi-engine turbine aircraft operated by Defence that may carry Defence personnel on long range flights. The approved aircraft Statement of Operating Intent and Usage (SOIU) forms the basis for applicability and the MAO is responsible for determining which aircraft should be managed under DLRO.

10.2 The determination of whether a Defence aircraft is subject to DLRO management is a capability and safety decision for the MAO. To support informed risk-based decision making on the technical suitability of a Defence aircraft to conduct DLRO, technical assessment of affected Defence aircraft must be conducted.

10.3 DLRO is, conceptually, similar to civil Extended Diversion Time Operations (EDTO) and consequently the Authority employs the EDTO airworthiness design requirements as a benchmark against which to assess Defence aircraft for DLRO. However, some important context for Defence aircraft must first be established to ensure that the civil standards are applied in a pragmatic manner. EDTO requirements apply only on specific routes where the aircraft operator is at the 'higher consequence' end of the civil aviation operations spectrum (ie EDTO normally only applies to 'regular public transport' and charter operators operating at significant distances from diversion airfields). For example, while EDTO may be prescribed for a Qantas A330 operating on a designated EDTO route in civil airspace, the same aircraft type operated by a private organisation without fare paying passengers on the same route will not be required to comply with EDTO requirements. Consequently, aviation industry 'good practice' for EDTO does not include strict compliance with EDTO requirements for all aircraft undertaking these operations.

10.4 Similarly, the Authority does not prescribe compliance with the civil EDTO requirements. Rather, the EDTO standards are used as the basis against which Defence aircraft technical aspects can be evaluated to identify hazards and associated risk treatments, and provide the MAO with a comprehensive basis upon which to make informed risk-based decisions in support of DLRO approval. While technical risk treatment would usually be pursued as the initial step in resolving shortfalls against prescribed design requirements, in this instance, operational controls may be equally valid and provide the same benefit in terms of safety outcomes. Therefore, it may be possible for the risk associated with DLRO to be minimised so far as is reasonably practicable without enforcing strict compliance with the civil EDTO standards for aircraft design or implementing potential design treatments for identified shortfalls. Consequently, the Authority has adopted the following approach to prescribing design requirements for DLRO:

(a) an analysis of the aircraft design features that support safe DLRO must be conducted against the civil EDTO standards;

Superseded

(b) shortfalls against the civil EDTO standards, and potential design risk treatments, must be identified;

(c) the shortfalls must be communicated to the MAO for a determination on whether operational controls would be effective in treating the risk, or whether design treatment will be required; and

(d) a continuing airworthiness program (ie a system of maintenance and a performance monitoring program) must be established to ensure that the design features that support safe DLRO are not compromised in service.

10.5 Finally, contemporary civil approaches to EDTO approvals accommodate the differences in hazards posed by one-engine inoperative operations at extended diversion times in aircraft with two engines and aircraft having more than two engines, through the application of more onerous requirements for two engine aircraft. Given the similarity in context between EDTO and DLRO, a similar approach for Defence aircraft is appropriate. Consequently, this chapter presents distinct Authority prescribed requirements for undertaking DLRO assessments on Defence aircraft having two and more than two engines respectively.

Scope

10.6 This chapter presents Authority prescribed design and continuing airworthiness requirements for Defence aircraft that are subject to DLRO management.

DEFENCE AIRCRAFT DLRO DESIGN REQUIREMENTS

10.7 This section presents the Authority prescribed DLRO design requirements for Defence aircraft.

Two engine Defence aircraft

10.8 **Design Requirement (Essential).** *Where the MAO has determined that a Defence aircraft having two engines is subject to DLRO management, the aircraft design must be evaluated against the design requirements prescribed in one of the following:*

(a) *CASA CAAP 82-1 – Extended Diversion Time Operations, or*

(b) *FAR Part 25 Appendix K – Extended Operations, in conjunction with FAA AC 120-42B – Extended Operations, or*

(c) *EASA AMC 20-6 – Extended Range Operation with Two-Engine Aeroplanes ETOPS Certification and Operation.*

10.9 The airworthiness design requirements for EDTO defined by the CASA, FAA or EASA provide an appropriate benchmark against which to establish the level of safety afforded by two engine Defence aircraft for DLRO. Defence aircraft designs must be evaluated against the requirements defined in the civil standards at paragraph 10.8 to identify shortfalls, characterise associated risks, and identify potential technical risk treatments to eliminate or minimise the risk. The outcomes of this evaluation, including risk treatment options and any residual risk, must be communicated to the MAO to support informed risk-based decisions on the aircraft's suitability for conducting DLRO.

Superseded

10.10 Where even a 'basic' evaluation of a two engine Defence aircraft design against the civil EDTO requirements cannot be accomplished, the Authority must be petitioned for agreement on a suitable benchmark and means of establishing compliance for the DLRO technical evaluation on a case-by-case basis. Examples might include:

(a) a military aircraft design for which long range operations was not originally considered and for which no design data to substantiate claims exists (eg for engine reliability); or

(b) the design complies with a bespoke suite of requirements that do not correlate to the civil EDTO, but meet the intent (eg P-8 designed to conduct long range over water operations).

Defence aircraft having more than two engines

10.11 **Design Requirement (Essential).** *Where the MAO has determined that a Defence aircraft having more than two engines is subject to DLRO management, the aircraft design must be evaluated against the requirements defined in ICAO Doc 10085 Extended Diversion Time Operations (EDTO) Manual for aircraft having more than two engines.*

10.12 The airworthiness design requirements for EDTO defined by the ICAO in ICAO Doc 10085 provide an appropriate benchmark against which to establish the level of safety for DLRO afforded by Defence aircraft having more than two engines. Per the ICAO requirements, the following is applicable to DLRO for Defence aircraft having more than two engines:

(a) The type certification standards and system of maintenance defined for the aircraft type in the applicable Authority recognised airworthiness code (refer Section 1 Chapter 3) are suitable for DLRO. There is no requirement for additional DLRO specific compliance demonstration, establishment of a maintenance program or performance/reliability monitoring program (eg engine performance monitoring) other than those programs already identified and implemented for 'normal' aircraft initial/continuing airworthiness and operations.

(b) A review of time limited systems (TLS) is required to confirm that the aircraft has the capability to safely divert to a suitable airfield at all times during DLRO, with any TLS limitations being published in aircraft documentation (eg MMEL/MEL and AFM) where required. This review should include DLRO significant systems, to identify the system having the most time-limiting impact and inform the decision on maximum diversion times permitted under the DLRO approval. The outcomes of this assessment, must be communicated to the MAO to support informed risk based decisions on the aircraft's suitability for conducting DLRO.

Extension/amendment of existing DLRO approvals for Defence aircraft (two and more than two engines)

10.13 Where a change is proposed to an existing DLRO approval, such as an extension to the approved diversion time, the technical basis upon which the DLRO approval was granted may be invalidated. Therefore, to support ongoing validity of the DLRO approval, proposed changes to the extant approval must be evaluated and verified to not impact the technical basis for DLRO, or the MAO must be advised of any change to the risks communicated via the original DLRO assessment.

10.14 **Design Requirement (Essential).** *Where an existing DLRO approval is to be extended/ amended, the impact of the proposed changes on the DLRO technical assessment must be evaluated and the MAO must be advised of any impact on associated risks.*

Superseded

DLRO DESIGN REQUIREMENTS FOR CHANGES TO TYPE DESIGN

10.15 Design changes to Defence aircraft may undermine the basis upon which the original DLRO approval was granted, resulting in additional hazards and associated risks. Where a design change impacts the suitability of the design for conducting DLRO, the basis upon which the technical recommendation for DLRO was made must be reassessed. The assessment must consider the impact of proposed changes, particularly for DLRO significant systems or continuing airworthiness arrangements. Where the assessment identifies a change in the risk profile associated with DLRO, the outcomes of the assessment must be communicated to the MAO, together with recommended risk treatment, to inform the decision on continued DLRO approval.

10.16 **Design Requirement (Essential).** *Changes to the type design that may impact the suitability of the Defence aircraft to conduct DLRO must be evaluated and confirmed to have no impact on the basis for DLRO approval, or any identified impacts must be communicated to the MAO.*

DLRO CONTINUING AIRWORTHINESS REQUIREMENTS

System of maintenance/monitoring and reporting requirements

Defence aircraft having more than two engines

10.17 As previously highlighted, DLRO maintenance and reliability requirements for Defence aircraft having more than two engines are satisfied through compliance with the applicable Authority recognised airworthiness code (eg FAA FAR Part 25 and Part 33, EASA CS-25 and CS- 33, MIL-HDBK-516C, DEF STAN 00-970). Consequently, for Defence aircraft having more than two engines, no DLRO specific maintenance or reliability programs are required in addition to those implemented for 'normal' aircraft continuing airworthiness and operations.

Two engine Defence aircraft

10.18 Continuing airworthiness programs provide a substantial contribution to reducing risks in civil EDTO. Similarly, maintenance and performance monitoring programs adapted to account for additional hazards posed by DLRO enhance the level of safety for Defence two engine aircraft. Further, since they are principally extensions to existing maintenance and performance monitoring programs, DLRO specific programs are likely to be reasonably practicable to implement. The system of maintenance and the performance monitoring and reporting systems in EDTO standards provide a reasonable benchmark for similar requirements in the DLRO context for two engine Defence aircraft. Therefore, the following DLRO continuing airworthiness requirement, based on the civil EDTO requirements, is prescribed by the Authority.

10.19 **Design Requirement (Essential).** *Where a two engine Defence aircraft is subject to DLRO management, a DLRO system of maintenance, and performance monitoring and reporting systems, must be defined to satisfy the requirements of:*

(a) *CASA CAAP 82-1 – Extended Diversion Time Operations, or*

(b) *FAR Part 25 Appendix K – Extended Operations, in conjunction with FAA AC 120-42B – Extended Operations, or*

(c) *EASA AMC 20-6 – Extended Range Operation with Two-Engine Aeroplanes ETOPS Certification and Operation.*

Superseded

10.20 Where the proposed DLRO system of maintenance and/or the performance monitoring program for a Defence aircraft does not satisfy the requirements of the civil EDTO standards, the Authority is to be petitioned for a determination on the adequacy of the proposed programs.

ADDITIONAL DEFENCE LONG RANGE OPERATIONS GUIDANCE

10.21 Further guidance on implementing the DLRO design and continuing airworthiness requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

AIRCRAFT/STORES COMPATIBILITY

INTRODUCTION

11.1 Defence aircraft are often fitted with aircraft stores. A store is defined as 'any device intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the item is intended to be separated in flight from the aircraft' and includes items such as sonobuoys, external fuel tanks and countermeasures.

11.2 Design standards are used for establishing the extent of compatibility between an aircraft, specific stores and suspension equipment and hence for justifying the airworthiness of stores for use on aircraft. Air Warfare Engineering Squadron (AWE SQN) maintains subject matter expertise for ASC and provides sponsorship of this chapter of the DASDRM. AWE SQN has identified shortfalls in extant Airworthiness Codes promulgated by civil and military Airworthiness Authorities as described in Section 1 of this manual. Consequently, the Authority has prescribed airworthiness design requirements for ASC to supplement these Airworthiness Codes to afford an adequate level of safety to personnel and property as well as enabling interoperability with allied nations.

Scope

11.3 This chapter identifies the Authority prescribed design standards for ASC which are applicable to aircraft acquisitions, changes to type design and capability and should be read in conjunction with relevant airworthiness regulations and DEOP 102. The standards identified are of specific relevance to ASC and do not include those that are purely applicable to munitions, explosives or ordnance (refer to Directorate Ordnance Safety's eDEOP 101 / DEOP 102 for these). This chapter also provides guidance on how a requesting agency can work with AWE SQN to tailor the standards to meet the requirements of a particular design.

ASC DESIGN REQUIREMENTS

11.4 This section presents the ASC airworthiness design requirements for stores fitted to Defence aircraft. A full list of the ASC standards referred to in this chapter is provided in Annex A. The standards are subdivided into the following groups for ease of reference:

11.5 **A/SC Terminology, Definitions and Glossary.** This includes the standards that define the terminology used in ASC, aircraft armament plus Safety and Suitability for Service (S3) of munitions and explosives.

11.6 **Airworthiness Standards.** These standards are applied to ensure that the integration of stores on to the aircraft does not adversely affect safe flight. These include standards which address general design, store/stores suspension equipment design and aircraft store environmental aspects.

11.7 **WHS Standards.** The application of WHS standards helps to ensure the health and safety of personnel and the public both in the air and on the ground. These standards address areas such as flight termination systems, range safety, safe escape, safety and S3 for aircraft stores.

Superseded

11.8 **Compatibility Standards.** These standards address the aircraft store interface and are applied to ensure that the store is compatible with the aviation system. This includes arming systems, electrical and mechanical connections, ground fit and compatibility criteria, and compatibility aspects for aircraft stores.

11.9 **Capability Standards.** The application of these standards helps to ensure that when the weapon is integrated onto the platform it can provide the required capability.

11.10 **Miscellaneous.** This includes interoperability and self-damage analysis of aircraft stores.

11.11 **Design Requirement (Essential).** Defence ASC designs must meet the requirements of the approved ASC 'standard', MIL-HDBK-1763 or MIL-HDBK-516C Sections 5 and 17, 'Aircraft/Stores Compatibility: Systems Engineering Data Requirements and Test Procedures'.

11.12 When a requirement for a new capability is approved, the acquisition process requires the development of a certification strategy that will include a Statement of Work (SOW) and/or Data Item Descriptor (DID). For ASC related designs, MIL-HDBK-1763 (specifically appendix C) provides a list of the ASC data requirements in the form of an Aircraft Stores Compatibility Engineering Data Package (ASCEDP). Whilst MIL-HDBK-1763 and MIL-HDBK-516C Sections 5 and 17 provide the complete requirements for an ASC design, there is typically a requirement to conduct some tailoring of the data requirements. Whenever there is a proposal to tailor the Authority prescribed standard, AWE SQN should be consulted to ensure that the airworthiness of the design is maintained. This may be accomplished by the Commonwealth before tendering a capability or by suppliers as part of the acquisition process.

11.13 **Design Requirement (Essential).** Defence ASC designs must meet the requirements of the relevant AIR STDs and STANAGs listed in Annex A.

11.14 Australia is actively involved in a number of international working groups relating to standards and agreements. The two most significant are the Air Force Interoperability Council (AFIC), formerly known as the Air and Space Interoperability Council (ASIC) and Air Standardisation Co-ordination Committee (ASCC), via Air Standards (AIR STD) and the North Atlantic Treaty Organisation (NATO) via Standardisation Agreements (STANAGs). Many of these standards and agreements have airworthiness implications and are called out by MIL-HDBK-1763 or MIL-HDBK-516C Sections 5 and 17, however, others are in place to promote and maintain a level of interoperability and commonality with allies. The standards relevant to ASC are detailed in Annex A to assist assessment / compliance during the development of any new ASC design. If compliance cannot be shown to a relevant AIR STD or STANAG, AWE SQN is to be consulted for further guidance.

11.15 **Design Requirement (Essential)**. To prevent damage to an aircraft from its own ordnance Safe Escape information (data and procedures) must be developed or acquired.

11.16 Safe Escape data and procedures provide protection for the releasing aircraft, and any other platforms that might be operating in conjunction with the releasing aircraft, to an acceptable level of risk. AWE SQN maintains subject matter expertise for the technical analysis and development of aircraft safe escape information. There are no current standards for the development of Safe Escape information to meet the acceptable risk levels defined by operational commanders. There are differences in acceptable risk levels for safe escape between nations (and services) from which the ADF receives safe escape information. Therefore, before any foreign information is utilised, AWE SQN must be approached to analyse the implications of these differences.

Superseded

CAPABILITY DESIGN REQUIREMENTS

11.17 The following requirements are not prescribed by the Authority, but should be considered for aircraft acquisitions or modifications to ASC where capability is a determining factor.

11.18 **Design Requirement.** Defence ASC Designs must meet the Australian Unique Capability Requirements defined in Annex B.

11.19 Australia has a unique legislative and operating environment to the rest of the world. This requires unique Aircraft/Stores considerations to ensure the ADF can operate safely. The requirements detailed in Annex B ensure that the risk to personnel and property is understood and the system meets an appropriate level of safety when the aircraft/stores system is exercised.

11.20 Commensurate with the requirements of Annex B, as well as maintaining subject matter expertise for ASC, AWE SQN can generate and approve Weapon Danger Areas (WDA). Before the acquisiton of a new system requiring a WDA it will be necessary to liaise with AWE SQN to determine what format the WDA will take and what data is necessary.

ADDITIONAL AIRCRAFT / STORES COMPATIBILITY GUIDANCE

11.21 **Tailoring**. Due to the number and variety of ASC configurations in Defence, tailoring or deviation from the ASC prescribed standards will often be necessary and may only occur following consultation with AWE SQN. Aircraft or Store Project Offices are advised to engage with AWE SQN on ASC aspects of projects as early as possible in the capability life cycle to ensure data and airworthiness requirements for ASC configurations can be satisfied and supported. Guidance on the tailoring process can be found in MIL-HDBK-516C Section 1.2.1.

11.22 **Products.** When AWE SQN provides airworthiness advice it is generally in the form of an ASC Flight Clearance Recommendation (FCR) or Interim Flight Clearance (IFC). This will normally address all aspects of an ASC standard, as well as the additional considerations identified above. Occasionally, technical information may be provided in another format to assist and inform risk retention authorities. Examples are compliance demonstration, procedures and other Technical Advice (TA) reports. In all cases, compliance with MIL-HDBK-1763, MIL-HDBK-516C Sections 5 and 17 or the standards listed in annex A will form the basis of all ASC products and advice.

11.23 **Novel / alternative standards.** Suppliers may use, or seek to use, novel or new processes to show that an acceptable airworthiness basis exists for an ASC design, even if this does not strictly comply with prescribed standards listed in Annex A. Whenever a new, novel or alternative standard or method of compliance is proposed, AWE SQN is to be petitioned for a formal determination of the acceptability of the solution.

11.24 Further guidance on Aircraft / Stores Compatibility is available from the chapter sponsor (airwarfarecentre.enquiries@defence.gov.au).

Annexes:

A. Standards Applicable to Aircraft Stores Compatibility

B. Australian Service Supplement for ASC

Superseded

ANNEXES

ANNEX A - STANDARDS APPLICABLE TO AIRCRAFT STORES COMPATIBILITY

STANDARDS APPLICABLE TO AIRCRAFT STORES COMPATIBILITY

Table 11-A-1 A/SC Terminology, Definitions and Glossary

STANDARD	DESCRIPTION	USE AND COMMENTS
NATOTerm	NATO Glossary of Terms and Conditions	
AAP-15	NATO Glossary of Abbreviations used in NATO Documents and Publications	
STANAG 3300 Ed 6 (AAP-46)	Standardised Aircraft Armament Terminology	
AOP-38 Ed 5	Glossary of terms and definitions concerning the S3 of munitions, explosives and related products	

Table 11-A-2 Airworthiness Standards

STANDARD	DESCRIPTION	USE AND COMMENTS
AIR STD ACS 4100	National Ratification of Weapons Related STANAGs	AFIC AIR STD coversheeting all referenced NATO STANAGs
STANAG 2310 Ed 4 (AEP-2310EdA)	Small Arms Ammunition (7.62mm)	
STANAG 3441 Ed 8	Design of Aircraft Stores	
STANAG 3575 Ed 5	Aircraft Store Ejector Racks	
STANAG 3556 Ed 5	Aircraft Store Ejector Cartridge	
STANAG 3558 Ed 6 (AEP-3558EdA)	Location of Electrical Connectors for Aircraft Stores	
STANAG 3585 Ed 6	20 mm Ammunition and Links for Aircraft Guns	
STANAG 3635 Ed 4	Aircraft Stores Suspension Units with Gravity Release Capability	
STANAG 3726 Ed 5	Ball (Portal) Lugs for the Suspension of Aircraft Stores	

Superseded

STANAG 3820 Ed 3	27mm x 145 Ammunition and Links for Aircraft Guns	
STANAG 4187 Ed 4 (AOP-16)	Fuzing Systems: Safety Design Requirements	
STANAG 4368 Ed 3	Ignition System for Rockets and Guided Missile Motors - Safety Design Requirements	
STANAG 4370 Ed 7 (AECTP-100 to 600)	Environmental Testing	Use NATO Allied Environmental Conditions and Test Publications (AECTP) for testing aircraft stores
STANAG 4432 Ed 1	Air Launched Guided Munitions, Principles for Safe Design	
STANAG 7081 Ed 1	Standard Rail for Launch of 0-68 Kilogram (0-150 Pound) Missile from Helicopters	
DEF STAN 00-970	Design and Airworthiness Requirements for Service Aircraft	**Not approved for purposes of A/SC design (seek specialist advice from AWE SQN)**
DEF STAN 07-85	Design Requirements for Weapons and Associated Systems	
DEOP 115	Defence Electro-Explosive Hazards Manual	
DO-178C	Software Considerations for Airborne Systems and Equipment Certification	
MIL-A-8591	General Design Criteria for Airborne Stores	
MIL-HBK-516C	Airworthiness Certification Criteria	Approved standard for A/SC design (relevant criteria from Section 5 and Section 17)
MIL-HDBK-1512	Electro-explosive Subsystems, Electrically Initiated, Design Requirements and Test Methods	
MIL-HDBK-1763	Aircraft Stores Compatibility: System Engineering Data Requirements and Test Procedures	Approved standard for A/SC design
MIL-STD-1670	Environmental Criteria and Guidelines for Air Launched Weapons	
MIL-STD-461	Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference	
MIL-STD-464	Electromagnetic Effects	

Superseded

MIL-STD-810	Environmental Test Methods and Engineering Guidelines	NATO AETCPs provide similar guidance
MIL-T-5442	Testing, Environmental, Airborne Electronic and Associated Equipment	
MIL-T-7743	Testing, Store Suspension and Release Equipment	

Table 11-A-3 Compatibility Standards

STANDARD	DESCRIPTION	USE AND COMMENTS
STANAG 3576 Ed 7 (AEP-100EdA)	Electrical Connector for Dispensers and Intervalometer Type Rocket Launchers for Aircraft	
STANAG 3605 Ed 5	Compatibility of Arming Systems and Expendable Aircraft Stores	
STANAG 3837 Ed 6	Aircraft Store Electrical Interconnection System	
STANAG 3842 Ed 5	Rail Launched Missile/Launcher Mechanical Interface	
STANAG 3899 Ed 3 (AEP-3899EdA)	Ground Fit and Compatibility Criteria for Aircraft Stores	
STANAG 7067 Ed 3	Type and Location of 'Non-1760' Electrical Connectors for Helicopter Rocket Launchers	
STANAG 7068 Ed 2	Aircraft/Stores Certification Procedures	
MIL-I-8670	Installation of Fixed Guns and Associated Equipment in Naval Aircraft	
MIL-HDBK-244	Guide to Aircraft Stores Compatibility	
MIL-I-8671	Installation of Droppable Stores and Associated Release Systems	
MIL-STD-1760	Aircraft-Store Electrical Interconnection System	

Table 11-A-4 WHS Standards

STANDARD	DESCRIPTION	USE AND COMMENTS
STANAG 2401 Ed 3 (ASRP-01 I EdB and II EdB)	Weapon Danger Areas / Zones for Unguided Weapons for use by NATO Forces in a Ground Role - Factors and Processes	

Superseded

STANAG 2928 Ed 7 (AOP-6 Vol 1 Ed(V))	Catalogue of Ammunitions Held by Nations that Satisfy the Interchangeability Criteria of Form, Fit and Function Only	
STANAG 3101 Ed 16	Exchange of Safety Information Concerning Aircraft and Missiles	
STANAG 4629 Ed 2 (AAS3P-01EdB)	Safety and Suitability for Service Assessment Testing of Non-nuclear Munitions	
MIL-PRF-9977	Manual, Technical and Checklists: Munitions/ Weapons Loading Procedures, Nonnuclear and Nuclear Packages, Standard Data: Munitions Loading Procedures, Nonnuclear, Preparation of	
MIL-STD-882	System Safety Program Requirements	
RCC STD 319-07	Flight Termination Systems Commonaility Standard	
RCC STD 321-07	Common Risk Criteria for National Test Ranges	

Superseded

ANNEX B AUSTRALIAN SERVICE SUPPLEMENT FOR ASC

AUSTRALIAN SERVICE SUPPLEMENT FOR ASC

Weapon Danger Areas

(a) Criterion: For all ASC designs that pose a hazard to personnel or infrastructure on the ground, a Weapon Danger Area (WDA) must be developed. Confirm a WDA has been developed, or can be developed in accordance with Australian WDA requirements.

(b) Standard: Ensure the weapon's supplied WDA meets the safety and risk requirements outlined in the applicable references. The development of a WDA ensures that the risk to personnel, property and the General Public is understood and acceptable when the aircraft stores system is exercised

(c) Method of Compliance: AWE SQN engineering report, output from an approved WDA tool e.g. Range Safety Template Tool (RSTT), Weapon Danger Zone Tool (WDZT), AMRAAM Footprint Utility Tool (AFUT) or equivalent. The appropriate standard will depend on the store design and the associated area in which it is to be used.

(d) References:

1. Defence Training Area Management Manual (DTAMM)
2. Air Force Air Weapons Practice Manual - AFAWPMAN
3. ANP3319 – RAN Firing Manual
4. AWC OPS 04-34 - Approval of Air Weapon Danger Areas
5. Chief of Air Force Policy – Use of Probabilistic Weapons Danger Areas for Air Force Air Launched Weapons on Australian Ranges

Toxicology and Environmental Hazards

(e) Criterion: Verify the hazardous materials associated with the aircraft-store combination is correctly documented and appropriate authorities or regulators are notified.

(f) Standard: All hazardous materials are documented with SDS's, appropriate PPE for handling the materials is stated in operation or maintenance manuals, residues from store usage are characterised and appropriately managed. Provide assurance to a reasonable level the materials left in the environment from functioning or jettisoning the store meet extant Australian EPA requirements.

(g) Method of Compliance: Verification methods include analysis, test, demonstration, simulation, inspection and review of documentation. Verification is accomplished by initial installation testing, qualification testing, physical fit checks, static ground fire testing, safety analysis, safe separation test certification, and live fire testing during Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E).

(h) References:

1. Work, Health and Safety Act (2011)
2. Environmental Protection and Biodiversity Conservation Act (1991)

Superseded

3. Defence Safety Manual (SAFETYMAN)

Superseded

CYBER SECURITY

INTRODUCTION

12.1 Within the aviation safety domain, cyber security is commonly understood as the protection of information systems against intentional unauthorised electronic interactions (IUEI). Aircraft systems and parts are increasingly interconnected, and those interconnections are vulnerable to cyber security threats. These threats have the potential to affect the airworthiness of an aircraft due to unauthorised access, use, disclosure, denial, disruption, modification or destruction of electronic information or electronic aircraft system interfaces.

12.2 The implementation of a robust and effective cyber security approach to Defence aircraft design supports aviation safety. The objective of this approach is to take into account the interdependencies between aviation safety and security in order to mitigate the potential effects of cyber security threats on aircraft airworthiness. This approach will reduce the vulnerability of aircraft systems, and ultimately improve safety, by reducing the risk of cyber security incidents or accidents.

12.3 The Authority has evaluated recognised NAA and MAA approaches to cyber security, and their associated aviation cyber security standards, and concluded that intelligent application and in some cases expansion is required to effectively implement cyber security into Defence aircraft designs. A number of Authority recognised NAAs and MAAs have not yet defined or promulgated prescribed cyber security design requirements. Further, cyber security standards may not account for Defence's obligations under the WHS legislation, since they may permit 'risk acceptance' once a specified risk level has been achieved. To promote the intelligent application of cyber security standards, this chapter first defines the requirements that should be satisfied for robust cyber security. The chapter then identifies where recognised NAA/MAA approaches to cyber security require particular attention if they are to meet the Authority's prescribed requirements. This approach, which should be applied using the system safety principles in Section 2 Chapter 2, provides design organisations with guidance to embed robust cyber security practices into their engineering procedures.

12.4 Note that the prescribed requirements are currently only recommended to allow for the broader Defence Cyber Strategy to mature, whilst offering designers the opportunity to proactively apply current international good practice design requirements. The Authority will monitor recognised NAA and MAA prescription of design requirements as well as the maturity of the broader Defence Cyber Strategy and at an appropriate time update the prescribed requirements in this chapter.

Scope

12.5 This chapter presents Authority-prescribed cyber security design requirements that are applicable to design activities conducted for new manned aircraft and changes to the aircraft type design.

CYBER SECURITY REQUIREMENTS

12.6 The desired cyber security outcomes are that:

(a) Information systems within Defence aircraft subject to Australian military type certifications are protected from IUEIs

Superseded

(b) Changes to the type design of in-service Defence aircraft do not compromise protections from IUEIs

(c) In-service management of Defence aircraft contributes to protections from IUEIs through effective instructions for continuing airworthiness and an effective continued airworthiness management framework.

Initial Aircraft Certification

12.7 **Cyber Security Requirement (Recommended).** *Aircraft equipment, systems and networks, considered separately and in relation to other systems, should be protected from IUEIs that may result in adverse effects on the safety of the aircraft. Protection should be ensured by showing that the security risks have been identified, assessed and treated as necessary.*

12.8 Compliance with this requirement can be demonstrated through adopting the cyber security processes defined in EUROCAE ED-202A Airworthiness Security Process Specification dated June 2014/RTCA DO-326A Airworthiness Security Process Specification dated 6 Aug 14. These documents provide a process centred on a focused security risk assessment which:

(a) determines the security environment for the information security of the aircraft

(b) identifies the attack paths

(c) assesses the safety consequences of the threats

(d) evaluates, by considering the existing security protection means, the level of threat that would impact safety

(e) determines whether the risks, which are the result of the combination of the severities and the potentiality to attack (or, inversely, the difficulty of attacking), are acceptable.

12.9 Guidance material for conducting the risk assessments can be found in EUROCAE ED-203A Airworthiness Security Methods and Considerations dated June 2018/RTCA DO-356A Airworthiness Security Methods and Considerations dated 21 Jun 18. Designers should engage with the appropriate Defence Cyber experts for assistance in determining the security environment, attack paths and associated level of threat.

12.10 **Cyber Security Requirement (Recommended).** *Instructions for continuing airworthiness and a continued airworthiness management framework should be defined and promulgated to ensure that the security protections of the aircraft's equipment, systems and networks are maintained.*

12.11 International good practice recognises that the management of cyber security risks extends into the operational life of type-certificated aircraft. Effective continued and continuing airworthiness programs need to be informed by the results of the security risk assessments created to support type certification. Guidance on this requirement can be found in EUROCAE ED-203A/RTCA DO-356A Airworthiness Security Methods and Considerations and EUROCAE ED-204/RTCA DO-355 Information Security Guidance for Continuing Airworthiness dated June 2014.

Changes to aircraft type design

12.12 **Cyber Security Requirement (Recommended).** *Changes to the type design of Defence aircraft should ensure the ongoing protection from IUEIs, where known, that may result in adverse effects on*

Superseded

the safety of the aircraft. Protection should be ensured by showing that the security risks have been identified, assessed and treated as necessary.

12.13 Changes to the aircraft type design may undermine the cyber security protections provided by the original military type certification, resulting in changes to cyber security hazards and their associated risks. Accordingly, the process described in the RTCA/EUROCAE process specifications detailed in paragraph 12.7 should be followed, limited in scope to the proposed change to type design. Designers should engage with the appropriate Defence Cyber experts for assistance in determining the security environment, attack paths and associated level of threat.

12.14 **Cyber Security Requirement (Recommended).** *Amendments to instructions for continuing airworthiness, and the continued airworthiness management framework should be promulgated as part of a change to type design, where necessary, to ensure that the security protections of the aircraft's equipment, systems and networks are maintained.*

12.15 Changes to the aircraft type design may require updates to the ongoing management of cyber security risks. Accordingly, the process described in the RTCA/EUROCAE specifications detailed in paragraph 12.10 should be followed, limited in scope to the proposed change to type design.

AUTHORITY-RECOGNISED NAA/MAA APPROACHES

12.16 This section describes the extent to which the cyber security elements of type certifications by Authority-recognised NAA/MAAs may be relied upon if offered as evidence of prior certifications.

12.17 Where the application is based on a prior certification from a recognised NAA/MAA, the applicant may be able to rely on a security risk assessment provided for the prior certification. Whether the applicant can rely on such risk assessments, wholly or in part, depends on the:

(a) scope, conditions and caveats of the relevant NAA/MAA recognition certificate

(b) extent that decisions in the risk assessment on whether identified risks were acceptable are valid given Australian WHS statutory obligations

(c) extent that Australian changes to the aircraft's configuration, role and environment (CRE) vary the cyber security risks identified in the risk assessment, or introduce new cyber security risks.

12.18 **Australian WHS legislation.** EUROCAE ED-202A/RTCA DO-326A Airworthiness Security Process Specification requires that decisions on risk acceptability be assessed using criteria defined by the relevant airworthiness authority. Accordingly, risk assessments performed for other NAAs/MAAs would not consider Australian WHS legislation. To comply with Australian statutory obligations, for any identified risks that were not eliminated during the prior certification, the applicant and relevant Military Air Operator (MAO), would decide whether the risks can be eliminated SFARP. If elimination is possible through reasonably practicable design controls, such design controls should be implemented before the aircraft enters service. If such design controls are not reasonably practicable, the applicant and MAO should consider the design controls necessary to minimise risks SFARP. If risk-minimising design controls are reasonably practicable, such design controls should be implemented before the aircraft enters service. If the implemented design controls would not eliminate the identified risks, then the MAO should undertake in-service risk management of the residual risks, including the implementation of reasonably practicable operational controls.

12.19 **CRE changes.** The applicant will need to consider the effect of any Australian CRE changes on the cyber security risks identified in security risk assessments provided as part of prior certifications. Such changes may require the security risk assessment to be supplemented by further analysis so that

Superseded

it considers all cyber security risks relevant to the Australian CRE. Where such analysis identifies new, or varies previously identified risks, the applicant and MAO should consider how to eliminate or otherwise minimise the risks as previously discussed.

12.20 If the applicant cannot rely on a security risk assessment provided as part of a prior certification, then the applicant would need to perform the process in the RTCA/EUROCAE process specifications detailed in paragraph 12.7, or engage a suitable organisation to perform one. Such a requirement is consistent with any other application where prior certification does not satisfy the entirety of the requirement, the applicant needs to undertake additional compliance demonstration activity to resolve the shortfall. The identified cyber security risks should be eliminated or otherwise minimised as previously discussed. Residual risks would be communicated to the MAO.

Civil cyber security approaches

12.21 **EASA.** To ensure designers consider cyber security hazards to aircraft airworthiness, EASA has introduced cyber design requirements into the following certification standards: CS-25 (Large Aeroplanes), CS-27 (Small Rotorcraft), CS-29 (Large Rotorcraft) CS-APU (Auxiliary Power Units), CS-E (Engines), CS-ETSO (European Technical Standard Orders) and CS-P (Propellers). The provisions take a common form, requiring the applicant to show during certification that the possible security risks posed by IUEI have been identified, assessed and mitigated as necessary. To demonstrate compliance with EASA's cyber security design requirements, EASA AMC 20-42 provides acceptable means, guidance and methods to perform security risk assessments and mitigation for aircraft information systems. The AMC refers to the three RTCA/EUROCAE cyber-related specifications detailed in paragraphs 12.7, 12.8 and 12.10.

12.22 The requirements in this chapter were based on EASA's approach to considering cyber security during aircraft type certification. Accordingly, security risk assessments performed during prior EASA certifications may be used provided a CRE assessment is performed and previously accepted risks are reconsidered by applying Australian WHS legislation.

12.23 **FAA.** The FAA has not yet introduced cyber security design requirements into its published airworthiness codes. Instead, it has implemented separate cyber security design requirements for what are termed 'connected aircraft', that is aircraft in which the main aircraft backbone, connecting flight-critical avionics as well as passenger information and entertainment systems, is performed in a manner that makes the aircraft an airborne interconnected network. Connected aircraft are certified with a special condition reflected on the aircraft Type Certificate Data Sheet, requiring operator actions to mitigate electronic security risks. At this time the Authority cannot determine the FAA considerations relevant to each aircraft's special condition.

12.24 Given that the FAA has not yet amended its airworthiness codes, applicants cannot rely on prior FAA certifications as a means of compliance with the cyber security design requirements detailed in this chapter. Nevertheless, available information relevant to the cyber security aspects of the FAA certification can inform Australian Defence security risk assessments.

Military cyber security approaches

12.25 **United States Navy (USN).** The USN approach is a policy called CYBERSAFE, based on recognised cyber security principles. Cyber security has been integrated into type certification processes as described within NAVAIR M-13034.1 Airworthiness and CYBERSAFE Process Manual, dated 13 Apr 16. Both the manual and instruction confirm that the key document is a flight clearance, either interim or permanent, issued by COMNAVAIRSYSCOM. As part of the flight clearance process,

Superseded

airworthiness and CYBERSAFE technical assessments are performed, with the resultant Flight Clearance confirming that an aircraft is both airworthy and meets the specified cyber security requirements. Circa 2021, insufficient information is available to confirm that the USN applies a security risk assessment equivalent to the process described in the RTCA/EUROCAE process specifications detailed in paragraphs 12.7, 12.8 and 12.10. Accordingly, applicants cannot rely on prior USN certifications as a means of compliance with the cyber security design requirements detailed in this chapter. Nevertheless, available information relevant to the cyber security aspects of USN certifications can inform Australian Defence security risk assessments.

12.26 **United States Air Force (USAF).** Despite attempts to glean information from published material and through DASA recognition channels, circa 2021, DASA cannot determine the United States Air Force regulatory approach to protecting aircraft from cyber hazards to aviation safety. Accordingly, applicants cannot rely on prior USAF certifications as a means of compliance with the cyber security design requirements detailed in this chapter. Nevertheless, available information relevant to the cyber security aspects of USAF certifications can inform Australian Defence security risk assessments.

12.27 **US Army.** Despite attempts to glean information from published material and through DASA recognition channels, circa 2021, DASA cannot determine the US Army regulatory approach to protecting aircraft from cyber hazards to aviation safety. Accordingly, applicants cannot rely on prior US Army certifications as a means of compliance with the cyber security design requirements detailed in this chapter. Nevertheless, available information relevant to the cyber security aspects of US Army certifications can inform

Australian Defence security risk assessments.

12.28 **UK MAA.** The UK MAA has amended its Defence Standard 00-970 Design and Airworthiness Requirements for Service Aircraft to introduce cyber security design requirements. These changes reference DEF STAN 00-55 Requirements for Safety of Programmable Elements in Defence Systems. Designers should ensure that platform cyber security vulnerabilities for safety-related software and complex electronic hardware do not purposefully or accidentally threaten airworthiness. An acceptable means of compliance with the cyber security requirements of DEFSTAN 00-055 are the RTCA/EUROCAE process specifications detailed in paragraph 12.7. Accordingly, security risk assessments performed during prior UK MAA certifications may be used provided a CRE delta assessment is performed and risks accepted within the UK MAA certification are reconsidered by applying Australian WHS legislation.

CYBER SECURITY GUIDANCE

12.29 Further guidance on implementing the cyber security requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

SECTION 3 - AIRCRAFT SYSTEM DESIGN REQUIREMENTS

CHAPTER 1 - APPLICATION OF SYSTEM DESIGN REQUIREMENTS

APPLICATION OF SYSTEM DESIGN REQUIREMENTS

1.1 For the majority of Defence aircraft systems, the airworthiness design requirements prescribed in the Authority recognised Airworthiness Codes define the requirements that underpin safe aircraft design. However, there are a number of systems for which these Airworthiness Codes are inadequate for Defence's intended configuration, role and operating environment (CRE).

1.2 Where airworthiness design requirements prescribed in the Authority recognised Airworthiness Codes may be inadequate for Defence's CRE, the Authority has identified supplementation. This section of the DASDRM presents that supplementation.

1.3 Where strict application of an Airworthiness code may affect capability or interoperability, design requirements to reduce these effects are also provided.

Scope

1.4 Section 3 of the DASDRM presents the Authority prescribed airworthiness design requirements for the following aircraft systems and technologies:

(a) communications systems,

(b) flight recorder and locating equipment,

(c) navigation systems,

(d) surveillance and avoidance systems,

(e) oxygen systems,

(f) lighting systems,

(g) electrical systems,

(h) environmental control systems,

(i) air vehicle subsystems (mechanical),

(j) aircraft performance and handling,

(k) aircraft structural integrity,

(l) propulsion systems,

(m) airborne lasers, and

(n) indicating systems.

Superseded

1.5 For enquiries regarding the content of the chapters in this section, readers should contact the chapter sponsor detailed in Annex A to Section 1 Chapter 1 in the first instance.

Superseded

COMMUNICATION SYSTEMS

INTRODUCTION

2.1 While traditional voice communications continue to provide a principal element of aviation communications, other forms of communication, such as digital data transfer, are becoming increasingly prevalent in supporting navigation, surveillance and tactical operations. The ICAO Manual on Required Communication Performance highlights the need for communications to be assured in high density airspace using a mixture of traditional voice and data link communications. A number of communication systems are also mandatory for flight in specified civil airspace, particularly to satisfy performance based navigation.

2.2 For the majority of communication systems, compliance with the airworthiness design requirements prescribed in an Authority recognised Airworthiness Code provides assurance of the safe design and operation of these systems in Defence aircraft. However, many civil and military Airworthiness Codes do not prescribe design requirements for communication systems that support specific aircraft operations (eg Required Navigation Performance) or missions. Such requirements are generally defined in supporting guidance material that is only invoked when the aircraft operator seeks approval to conduct the applicable operations. Consequently, the Authority prescribes airworthiness design requirements for communication systems to supplement the Airworthiness Codes and provide a basis for verifying the acceptability of the associated communication systems for safe operations or to satisfy capability requirements for Defence aircraft.

Scope

2.3 This Chapter prescribes Authority supplementation to the aircraft communications systems elements of recognised civil and military Airworthiness Codes. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

DEFENCE AIRCRAFT COMMUNICATION SYSTEMS DESIGN REQUIREMENTS

2.4 Communications systems must meet the requirements prescribed for operations in specific classes of airspace, and to navigate in civil airspace and along specified civil routes. Prior to establishing the airworthiness design requirements that must be met for a Defence aircraft's communication systems, the designer must confirm the global airspace and navigation environment in which the Defence aircraft will operate, and consequently establish the communications systems requirements necessary to achieve safe aircraft operations.

Superseded

2.5 **Design Requirement (Essential).** *The communication systems fitted to Defence aircraft must satisfy the minimum systems/equipment and functional requirements for proposed operations in civil airspace as prescribed by the administering NAA.*

2.6 **Design Requirement (Essential).** *The communication systems fitted to Defence aircraft must satisfy the minimum systems/equipment and functional requirements for proposed navigation in civil airspace as prescribed by the administering NAA.*

2.7 When establishing the communication systems and equipment to be fitted to Defence aircraft, designers must ensure that the minimum systems required to support proposed operations in world-wide civil airspace (both for communication between aircraft and/or ATC and for navigation in civil airspace) are installed and satisfy the applicable design standards. In particular, civil airspace routes are increasingly adopting Performance Based Communications and Surveillance protocols, which require communications systems to meet prescribed performance criteria (ie data link capabilities and communication expiry times) to operate on those routes. Failure to ensure required communication systems are installed may result in loss of crew situational awareness or limitations on access to civil airspace.

2.8 Noting that inadequate communications capability may result in denial of access to civil airspace, and that Defence aircraft acquisition can be an extended activity, designers should ensure that communication systems functional requirements are identified both for current civil airspace operations and for future operations (3-5 years post introduction into service). This will ensure that Defence aircraft are capable of safely operating in civil airspace without restriction in the short to medium term.

Very High Frequency (VHF) channel separation

2.9 **Design Requirement (Essential).** Defence aircraft that will operate in airspace that requires an 8.33 kHz channel separation must be fitted with VHF communications equipment that satisfies the requirements of:

(a) *ED-23C, Minimum Operational Performance Standards for Airborne VHF receiver-transmitter operating in the frequency range 117.975 – 137.00 MHz, or*

(b) *TSO-C169a, VHF Radio Communications Transceiver Equipment Operating within Radio Frequency Range 117.975 to 137.000 Megahertz.*

2.10 The Authority recognised civil Airworthiness Codes require aircraft VHF transmitters, receivers and transceivers to operate with a minimum channel separation of 25 kHz. To provide additional capacity for VHF communications in congested airspace, EASA has adopted reduced VHF channel separation to 8.33 kHz. Lack of equipment with an 8.33 kHz channel separation capability could lead to the crew being unable to communicate with ATC or other airspace users. Operations in European civil airspace therefore may be restricted unless VHF equipment having 8.33 kHz separation is installed.

Superseded

2.11 **Design Requirement (Essential).** *Data link communications used for traffic detection, separation and collision avoidance fitted to Defence aircraft must satisfy the civil standard applicable to operations in the associated civil airspace.*

2.12 Certain types of operations in civil airspace rely on data link communications systems to provide situational awareness or air traffic direction/advice to the crew. The lack of this communications equipment may lead to limited access to associated civil airspace or loss of crew situational awareness.

CAPABILITY AND INTEROPERABILITY DESIGN REQUIREMENTS

2.13 This section presents design requirements that are not prescribed by the Authority, but identify particular design issues that designers should consider when establishing requirements for Defence aircraft communication systems.

2.14 **Capability design requirement.** *Defence aircraft communication systems should satisfy the functional requirements prescribed by coalition partners for intercommunications and mission/ capability.*

2.15 A number of communications systems, such as secure voice communications and data link systems, provide essential capability functions that support interoperability. Failure to identify requirements for these systems and ensure that adequate functionality is provided could result in coalition partner refusal to conduct joint operations with Defence aircraft, or incorrect identification of Defence aircraft as 'hostile' during operations. Consequently, designers should ensure that all communication systems and associated functionality necessary to support joint operations are identified and captured in Defence aircraft design requirements. The AFIC standards may provide designers with a baseline from which to derive communication requirements for Defence aircraft.

2.16 **Capability design requirement.** *Where required, Defence aircraft communication systems should comply with the Emanations Security requirements detailed in Section 2 Chapter 4 Electromagnetic Environmental Effects.*

2.17 Inadequate protection of voice or data communications from unauthorised interception may compromise Defence capability.

ADDITIONAL COMMUNICATION SYSTEMS GUIDANCE

2.18 Further guidance on implementing the communications systems requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

FLIGHT RECORDER AND LOCATING EQUIPMENT

Superseded

INTRODUCTION

3.1 Aircraft flight recorder equipment provides data that may be used for the purposes of accident/ incident investigation, and therefore contribute to the safety of future aircraft operations. Locating equipment provides the means by which an aircraft and personnel can be located following an accident. DASR ORO.85 Flight Recorder and Locating Equipment requires a Military Air Operator (MAO) to ensure that Defence aircraft are fitted with flight recorder and locating equipment appropriate to its military configuration, role and operating environment (CRE) to:

(a) locate aircraft and personnel in the event of an aircraft crash

(b) provide data that can be downloaded, interpreted and analysed by approved personnel to assist in the prevention of further aviation safety occurrences.

3.2 While the Authority recognised civil Airworthiness Codes defined in Section 1 of this manual prescribe suitable requirements for flight recorder and locating equipment, clear and comprehensive design requirements are not prescribed in all Authority recognised military Airworthiness Codes. Consequently, the Authority prescribes airworthiness design requirements for flight recorder and locating equipment to supplement the Airworthiness Codes.

Scope

3.3 This Chapter presents Authority prescribed airworthiness design requirements for Defence aircraft flight recorder and locating equipment.

FLIGHT RECORDER AND LOCATING EQUIPMENT DESIGN REQUIREMENTS

Flight recorder equipment design requirements

3.4 Flight recorder equipment is any type of receiver installed in the aircraft for the primary purpose of complementing accident/incident investigation. Flight recorder equipment in Defence aircraft normally consists of a Flight Data Recorder (FDR), a Cockpit Voice Recorder (CVR) and an Underwater Locating Device (ULD). For the purpose of defining design requirements for flight recorder equipment, Defence aircraft have been grouped into the following three broad categories:

(a) large fixed wing, multi-engine aircraft

(b) small fixed wing, fighter/attack/trainer aircraft

(c) rotary wing aircraft.

3.5 The following paragraphs define the Authority prescribed flight recorder equipment airworthiness design requirements. Where reference to a specific standard is made within these requirements, the latest version of the standard applies.

3.6 **Design Requirement (Essential).** *Flight recorder equipment fitted to Defence aircraft must satisfy the requirements defined in Section 2 of EUROCAE ED-112 Minimum Operational Performance Specification for Crash Protected Airborne Recorder Systems, as follows:*

(a) **Large fixed wing aircraft.** *ED-112 Part I for Class 1 CVRs, and ED-112 Part II for Class A FDRs, including data recording requirements.*

(b) **Small fixed wing aircraft.** *ED-112 Part I for Class 1 CVRs, and ED-112 Part II for Class B FDRs, including data recording requirements.*

(c) **Rotary wing aircraft.** *ED-112 Part I for Class 1 CVRs, and ED-112 Part II for Class B or D FDRs, including data recording requirements.*

3.7 Defence aircraft flight recorder equipment should provide sufficient data both in terms of number and type of parameters and recording timeframe to support comprehensive accident and incident investigations. EUROCAE ED-112 defines the contemporary requirements against which civil flight recorder installations are certified, and provides an acceptable basis for Defence aircraft flight recorder equipment certification. For certain aircraft types (eg Navy helicopters) deployable FDRs that comply with ED-112 Part II Class D requirements may be more appropriate, and this should be established in consultation with the capability manager prior to specifying the required design standard.

3.8 While ED-112 has been adopted by the Authority as the benchmark airworthiness design requirement for flight recorder equipment, military aircraft are often not designed to satisfy the ED-112 standard. However, some parameters used for accident investigation purposes may be available from other aircraft sources or their absence may not preclude a successful accident/incident investigation. Therefore, before embarking on often expensive modifications to comply with the full scope of ED-112 requirements, the Authority should be approached for advice on the acceptability of the current flight recorder installation.

3.9 **Design Requirement (Essential).** *In addition to data recording requirements defined in ED-112, unique design or operational characteristics of Defence aircraft that may impact safe flight must be evaluated to establish if recording of additional parameters for these features is warranted.*

3.10 Defence aircraft configurations may include military unique safety related design features that are not included within the 'standard' suite of recorded parameters required by ED-112. In particular, mission system modifications may introduce failure modes or operational characteristics that adversely impact safe flight. A flight recorder system that complies only with the requirements of ED-112 may not capture data parameters associated with these systems and, therefore, may not furnish accident investigators with sufficient data to identify the cause of an accident. Consequently, Defence aircraft modifications, particularly those fitted to civil-derivative Defence aircraft, must be evaluated to determine whether recording of additional data parameters is warranted.

3.11 **Design Requirement (Essential).** *Flight recorder equipment must remain powered throughout all phases of aircraft operation, and following total loss of aircraft primary power sources.*

3.12 Electrical power to flight recorder equipment must be maintained throughout all aircraft operating modes to ensure the continued recording of aircraft parameters post power failure. To establish the adequacy of power supply arrangements for ensuring data integrity for future incident/accident investigation purposes, the potential for complete aircraft power supply failure to the flight recorder equipment should be evaluated. Where flight recorder equipment is not powered from an aircraft supply that ensures continued recorder operation following primary aircraft power supply failure (eg connection via the essential/battery bus), a supplementary flight recorder power supply

Superseded

will be required. In these circumstances a Recorder Independent Power Supply (RIPS), which ensures that the equipment will continue to record aircraft data parameters, may be appropriate. RIPS fitted to Defence aircraft flight recorder equipment should comply with the requirements of ED-112 Section 5.

3.13 **Design Requirement (Essential).** Underwater location devices (ULD) must comply with the following:

(a) *37.5 kHz ULD fitted to non-deployable flight recorder equipment:*

1. *SAE AS8045A,*
2. *EUROCAE ED112, and*
3. *TSO C-121b.*

(b) *8.8 kHz airframe ULD fitted to Defence aircraft:*

1. *ARINC Specification 677, or*
2. *SAE AS6254A, and*
3. *ETSO C-200a.*

3.14 ULDs assist in the location of flight recorder equipment (in particular the data storage module(s)) and the aircraft itself following an aircraft accident over water. Consequently, all Defence aircraft flight recording equipment must be fitted with a ULD that transmits a signal compatible with extant search and rescue monitoring requirements and has appropriate battery life. Where ULD are fitted to Defence aircraft airframes, to aid in location of aircraft wreckage that may have become separated from the flight recorder equipment, these ULDs also must transmit signals compatible with extant search and rescue monitoring requirements.

Locating equipment design requirements

3.15 This section presents design requirements for Defence aircraft locating equipment (Emergency Locator Transmitter (ELT) systems). An ELT provides the means by which an aircraft and personnel can be located following an aircraft accident. ELTs broadcast distinctive signals on designated frequencies and, depending on application, may be automatically or manually activated.

3.16 **Design Requirement (Essential).** *Emergency Locator Transmitter (ELT) fitted to Defence aircraft must provide dual 121.5/406 MHz capability and comply with FAA TSO-C126 or EASA ETSO-2C126, 406 MHz Emergency Locator Transmitter.*

3.17 The fitment of 406 MHz ELTs enables the emergency satellite monitoring system to detect a crashed aircraft, while the 121.5 MHz capability will assist with radio location of the crash site by search and rescue aircraft when in close proximity. Note that portable signalling equipment, such as personal locator beacons, may also be fitted to Defence aircraft (or carried on board with crew/ passengers) and should also be confirmed as being compatible with current emergency response search and rescue frequencies. Any proposal to utilise such portable signalling equipment as a substitute for the fixed aircraft ELT must be communicated to the capability manager who will determine if such use is appropriate in consultation with the Authority.

Superseded

CONTINUING AIRWORTHINESS REQUIREMENTS

3.18 **Continuing airworthiness requirement.** *A flight recorder equipment maintenance program should be established so that Defence aircraft flight recording equipment and associated sensors remain operable during the aircraft's service life.*

3.19 Flight recorder equipment, and associated sensors, maintenance requirements should be established and promulgated, and include as a minimum:

(a) an annual check of the serviceability of data sensors

(b) annual download and analysis of flight recorder data to confirm fidelity of the recording.

3.20 Detailed considerations for the conduct of annual checks of flight recorder equipment are contained in the Defence Aviation Safety Manual.

3.21 **Continuing airworthiness requirement.** *An ELT maintenance program should be established so that Defence aircraft ELTs remain operable during their service life.*

3.22 ELT maintenance requirements should be established and promulgated, and include as a minimum:

(a) an ELT functional test at least every 12 months

(b) corrosion inspection performed during each required battery change

(c) battery change in accordance with the manufacturers guidelines followed by a functional check.

CAPABILITY REQUIREMENTS

3.23 **Capability requirement.** *Recorded data security risk assessments should be conducted on Defence aircraft flight recorder equipment, with associated controls identified, implemented and documented.*

3.24 Flight recorder designs may not afford adequate protection against unauthorised access to sensitive information that may be processed by and recorded on flight recorder equipment. Consequently, a security assessment of the system and data recorded should be undertaken to identify potential implications of unauthorised access. Where potential security risks are identified, these should be evaluated and appropriate controls (eg design - installation of 'zeroise' features or data encryption; or procedural - requirements for disabling data recording functions during certain operational scenarios) should be implemented where warranted. Any protective measures implemented or required to be conducted during aircraft operations should be documented in the aircraft's security program documentation (eg the aircraft specific Security Classification and Categorisation Guide).

ADDITIONAL FLIGHT RECORDER AND LOCATING EQUIPMENT GUIDANCE

3.25 Further guidance on implementing the flight recorder and locating equipment requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

NAVIGATION SYSTEMS

INTRODUCTION

4.1 Defence aircraft operate in a global airspace environment that includes civil airspace that is subject to prescribed access criteria. This airspace is a shared resource and, to maintain airspace limitations such as separation minima, civil airworthiness authorities prescribe minimum performance requirements for aircraft navigation systems. While International Civil Aviation Organisation (ICAO) rules for civil aviation are not applicable to State registered aircraft, it is becoming increasingly difficult for civil air traffic authorities to cater for Defence aircraft if they are not capable of similar navigation performance to civil aircraft. This may result in Defence aircraft being subjected to civil airspace restrictions, for example sub-optimal altitudes and routing and, in some instances, exclusion from certain airspace (despite the ICAO exemption).

4.2 Some civil operations, such as operations under Instrument Flight Rules (IFR), require compliance with specific airworthiness requirements for aircraft equipment and/or operations. Where Defence aircraft require unimpeded access to civil airspace subject to IFR, the Defence aircraft must satisfy an equivalent level of safety to civil aircraft operating in the airspace to avoid posing a risk to other airspace users. Further, Defence operations under the same conditions as civil IFR operations, whether in designated airspace or not, should endeavour to satisfy the same (or substantially similar) requirements to afford a level of safety for Defence aircraft crew and passengers commensurate with these type of operations.

4.3 DASR RoA.05, Rules of the Air, requires capability managers to 'ensure that Rules of the Air as they apply to Defence Aviation as stipulated within Defence AIP are harmonised with ICAO and national civil practice wherever practical in order to assure Defence Aviation interoperability with non-Defence aviation activities'. To verify that Defence aircraft designs satisfy the requirements for operating in civil airspace (eg to operate on Performance Based Navigation (PBN) routes or conduct operations under IFR), the Authority prescribes airworthiness design requirements for navigation systems. Where shortfalls are identified against the 'essential' Authority prescribed design requirements in this chapter (eg to accommodate military unique functions), but the Defence aircraft navigation system is expected to substantially meet the relevant standard, the Authority must be petitioned for a determination regarding the shortfalls.

Scope

4.4 This Chapter presents Authority prescribed airworthiness design requirements for Defence aircraft navigation systems. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual. Further, there may be additional airspace access requirements (such as requirements for communications and display systems) related to operations in civil airspace that must be considered when establishing the suitability of an aircraft to operate in that airspace. Where applicable, compliance with these additional requirements must also be verified.

Superseded

4.5 The determination of whether a Defence aircraft requires particular navigation systems capabilities is, ultimately, a capability and safety decision for the capability manager. Where the capability manager determines that unimpeded operations in civil airspace or along specified civil routes are required, navigation systems must meet the requirements prescribed for navigation in that airspace. Prior to establishing the airworthiness design requirements that must be met for a Defence aircraft's navigation system, the global airspace and navigation environment in which the Defence aircraft will operate must be identified to support the establishment of navigation systems requirements necessary to achieve safe aircraft operations. This section presents the Authority prescribed navigation systems design requirements for Defence aircraft.

Performance Based Navigation (PBN) design requirements

4.6 Civil airspace separation minima (from other aircraft in the area and from obstacles along the route) are predicated on the aircraft's ability to navigate to a predetermined accuracy threshold, or to advise the crew when this accuracy is not available so that air traffic controllers can make alternative separation arrangements. Defence aircraft operations in PBN designated airspace may present a risk to other airspace users, and to the Defence aircraft itself, if the aircraft is unable to maintain the required navigation performance and neither air traffic controllers nor other airspace users are aware of this performance limitation. Consequently, to permit Defence aircraft operations that are compatible with, and safely support interoperability in, civil PBN airspace, the Authority prescribes Area Navigation (RNAV) / Required Navigation Performance (RNP) airworthiness design requirements based on the associated civil standards. Where a Defence aircraft requires unimpeded access to civil airspace for which a PBN specification applies, the airworthiness design requirements associated with the relevant PBN specification, and prescribed by an Authority recognised NAA, apply.

4.7 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNP 10 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by any one of the following:*

(a) *CASA AC 91U-2(0), Required Navigation Performance 10 (RNP 10) Operational Authorisation, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems, or*

(c) *EASA AMC 20-12, Recognition of FAA Order 8400.12A for RNP-10 Operations.*

4.8 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNAV 5 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by any one of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 90-96A, Approval of U.S. Operators and Aircraft to Operate Under Instrument Flight Rules (IFR) in European Airspace Designated for Basic Area Navigation (B-RNAV) and Precision Area Navigation (P-RNAV), or*

(c) *EASA AMC 20-4A, Airworthiness Approval and Operational Criteria for the Use of Navigation Systems in European Airspace Designated For Basic RNAV Operations.*

Superseded

4.9 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNAV 1 and/or RNAV 2 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by any one of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 90-100A, U.S Terminal and En Route Area Navigation (RNAV) Operations, or*

(c) *JAA TGL 10, Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace.*

4.10 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNP 4 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by either of the following:*

(a) *CASA AC 91U-3(0), Required Navigation Performance 4 (RNP 4) Operational Authorisation, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems.*

4.11 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNP 1 and/or RNP 2 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by either of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems.*

4.12 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to Advanced RNP (A-RNP) airspace, the navigation system must satisfy the performance and functional requirements prescribed by the following:*

(a) *CASA AC 91.U-01 Navigation Authorisations, or*

(b) *FAA AC 20-138D Airworthiness Approval of Positioning and Navigation Systems.*

4.13 **Design Requirement (Essential).** *Where Defence aircraft operation on a defined RNP Approach (RNP APCH) route is required, the navigation system must satisfy the performance and functional requirements prescribed by any one of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems, or*

(c) *EASA AMC 20-27A, Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO-VNAV Operations.*

4.14 **Design Requirement (Essential).** *Where Defence aircraft operation on a defined RNP Authorisation Required Approach (RNP AR APCH) route is required, the navigation system must satisfy the performance and functional requirements prescribed by any one of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems, or*

(c) *EASA AMC 20-26, Airworthiness Approval and Operational Criteria for RNP Authorisation Required (RNP AR) Operations.*

Superseded

4.15 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to RNP 0.3 designated airspace, the navigation system must satisfy the performance and functional requirements prescribed by either of the following:*

(a) *CASA AC 91.U-01, Navigation Authorisations, or*

(b) *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems.*

NOTES

Compliance with the requirements of one navigation specification does not automatically verify compliance with the requirements of all other navigation specifications with less stringent accuracy requirements (eg compliance with RNP 1 does not verify compliance with RNP 4). Notwithstanding the above 'note', where a Defence aircraft satisfies the requirements for A-RNP operations, then the aircraft is also capable of conducting RNAV 5, RNAV 2, RNAV 1, RNP 2, RNP 1 and RNP APCH operations. However, demonstration of RNAV 5, RNAV 2, RNAV 1, RNP 2, RNP 1 and RNP-APCH, in combination, does not automatically equate to A-RNP. Additional functions, such as Radius to Fix (RF) Path Terminator that are optional for other RNP specifications, are required for A-RNP.

Vertical Navigation design requirements

4.16 Required Vertical Separation Minimum (RVSM). RVSM describes the reduction of standard vertical separation to 1000 feet for aircraft flying above Flight Level (FL) 290 in designated RVSM airspace. Defence aircraft operating in designated RVSM airspace with a navigation system that does not provide the required performance or functionality to support such operations may pose a hazard to other airspace users as a result of loss of separation assurance. Therefore, Defence aircraft that are not RVSM compliant and have a requirement to operate in RVSM designated airspace may be subjected to limitations on their use of that airspace (eg limited to operations only during low volume civil traffic periods, or restrictions on Flight Level). To permit Defence aircraft operations that are compatible with, and safely support interoperability in, civil RVSM airspace, the Authority prescribes RVSM airworthiness design requirements based on the associated civil NAA standards.

4.17 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to Reduced Vertical Separation Minimum (RVSM) designated airspace, the navigation system must meet the requirements prescribed by any one of the following:*

(a) *CASA CAAP 181A-1 (2), Reduced Vertical Separation Minimum (RVSM) Approvals, or*

(b) *FAA AC 91-85B, Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum Airspace, or*

(c) *EASA CS-ACNS, Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance.*

4.18 Vertical Navigation (VNAV). VNAV is used in conjunction with RNAV/RNP lateral approach procedures to define requirements for the vertical flight paths and vertical tracking to the path of instrument approaches. VNAV is conducted using either barometric vertical navigation (baro-VNAV) equipment, or via GPS equipment with Satellite Based Augmentation System (SBAS) capability. Circa 2021, SBAS is not available in Australian controlled airspace (Geoscience Australia has initiated an SBAS project due for completion in 2023/24). Defence aircraft cannot conduct a VNAV approach unless the aircraft is fitted with a navigation system that supports VNAV capability. VNAV systems that do not provide the required performance or functionality may result in aircrew loss of situational awareness, descent below minima and, ultimately, CFIT.

Superseded

4.19 **Design Requirement (Essential).** Where Defence aircraft operation on a defined Vertical Navigation (VNAV) approach is required, the navigation system must meet the requirements prescribed by the following:

(a) **Baro-VNAV.**

1. *CASA AC 91.U-01, Navigation Authorisations, or*
2. *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems, or*
3. *EASA AMC 20-27A, Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations, including BARO-VNAV Operations.*

(b) **GPS supported VNAV.**

1. *FAA AC 20-138D, Airworthiness Approval of Positioning and Navigation Systems, or*
2. *EASA AMC 20-28, Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System.*

Database design requirements

4.20 **Design Requirement (Essential).** *Database data for navigation of Defence aircraft must be provided by accredited suppliers, approved in accordance with applicable Authority recognised NAA regulations or DASR ANSP.*

4.21 All RNAV/RNP applications use aeronautical data to define ground-based navigation aids, runways, gates, waypoints and route/procedure to be flown. The safety of RNAV/RNP operations is dependent upon the precision, resolution, and integrity of this data. Further information on the use and approval of Aeronautical Information Databases is contained in Section 5 Chapter 3, Mission Planning Systems.

Instrument Flight Rules design requirements

4.22 Civil NAAs publish airworthiness requirements for the conduct of flights under Instrument Flight Rules (IFR). These requirements describe both aircraft systems and aircrew competency and authorisation. Defence aircraft systems and equipment requirements for IFR operations should satisfy airworthiness design requirements that support safe operations when reliance on visual flight cues is not possible. The IFR requirements of Authority recognised civil NAAs provide a widely accepted benchmark for aircraft systems used to support safe IFR operations. Consequently, the Authority prescribes IFR design requirements for Defence aircraft based on the civil IFR requirements. Where a Defence aircraft requires unimpeded access to civil airspace in which IFR applies, the relevant airworthiness design requirements prescribed by an Authority recognised civil NAA must be satisfied.

4.23 Authority recognised NAAs have promulgated IFR certification and approval requirements based on aircraft categories and types of operations, which may not be representative of the aircraft types operated by the ADF or the roles in which these aircraft are employed. Therefore, the application of the NAA requirements to Defence aircraft may not be straightforward. The IFR airworthiness design requirements prescribed in this chapter are presented using the generic aircraft type categories used within civil type certification programs (ie Parts 23, 25, 27 and 29 aircraft types

Superseded

and military equivalents). Consequently, the correct aircraft 'category' must be established for a particular Defence aircraft to identify which Authority prescribed design requirements are applicable.

4.24 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to IFR designated airspace, the aircraft must satisfy the airworthiness design requirements prescribed by an Authority recognised civil NAA for the applicable aircraft category as follows:*

(a) **Part 23 (and military equivalent) certified Defence aircraft – single/dual pilot and less than 9 passengers.**

1. **FAA.** *IFR certification/approval requirements detailed in FAR Part 23 and FAR 91.205, supplemented with:*

   i. *fitment of a landing light(s), and*

   ii. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications, or*

2. **EASA.** *IFR certification/approval requirements detailed in EASA CS-23 and EU CAT IDE.A.115, IDE.A.130, IDE.A.135, IDE.A.325, IDE.A.335, IDE.A.345 and IDE.A.350, supplemented with:*

   i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications.*

(b) **Part 25 (including Part 23 commuter/charter and military equivalent) certified Defence aircraft – dual pilot and/or 9 or more passengers/crew.**

1. **FAA.** *IFR certification/approval requirements detailed in FAR Part 25 (and relevant sections of FAR Part 23 applicable to commuter category aircraft) and applicable requirements from FAR 91.205, 121.323, 121.325, 121.349, 125.203, 125.205, 135.163 and 135.165, supplemented with:*

   i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications, or*

2. **EASA.** *IFR certification/approval requirements detailed in EASA CS-25 and EU CAT IDE.A.130, IDE.A.135, IDE.A.325, IDE.A.335, IDE.A.345 and IDE.A.350, supplemented with:*

   i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications.*

(c) **Part 27 (and military equivalent) certified Defence aircraft – single/dual pilot and less than 9 passengers.**

1. **FAA.** *IFR certification/approval requirements detailed in FAR Part 27 (including FAR 27 Appendix B) and FAR 91.205, supplemented with:*

   i. *fitment of a landing light(s); and*

   ii. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications, or*

Superseded

2. **EASA.** *IFR certification/approval requirements detailed in EASA CS-27 (including CS-27 Appendix B) and EU CAT IDE.H.115, IDE.H.130, IDE.H.135, IDE.H.335, IDE.H.345 and IDE.H.350, supplemented with:*

i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications.*

NOTE

The requirements for static pressure sources defined in CASR Part 91 Manual of Standards may be used in lieu of those defined in FAR Part 27 Appendix B or EU CAT.IDE.H.130.

(d) **Part 29 (including Part 27 commuter/charter and military equivalent) certified Defence aircraft – dual pilot and/or 9 or more passengers/crew.**

1. **FAA.** *IFR certification/approval requirements detailed in FAR Part 29 (including FAR 29 Appendix B) and FAR 91.205, 135.163 and 135.165, supplemented with:*

i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications, or*

2. **EASA.** *IFR certification/approval requirements detailed in EASA CS-29 (including CS-29 Appendix B) and EU CAT IDE.H.115, IDE.H.130, IDE.H.135, IDE.H.160, IDE.H.335, IDE.H.345 and IDE.H.350, supplemented with:*

i. *equipment and systems requirements prescribed in the ADF General Planning Australia (GPA) and Flight information Handbook Australia (FIHA) publications.*

NOTE

The requirements for static pressure sources defined in CASR Part 91 Manual of Standards may be used in lieu of those defined in FAR Part 29 Appendix B or EU CAT.IDE.H.130

NOTE

While the airworthiness design requirements in the civil Airworthiness Codes described above provide the benchmark IFR design requirements for Defence aircraft, Defence operational requirements such as those defined in the ADF GPA and FIHA may override the minimum equipment and systems prescribed by civil NAAs.

VHF Omni-directional Range (VOR) Navigation and Instrument Landing Systems (ILS)

4.25 VOR navigation systems provide a ground-based radio navigation aid infrastructure that may be used for navigation when GPS or other independent navigation sources are unavailable. ILS provides a ground-based radio navigation approach aid to guide an aircraft down a predetermined safe approach path to the runway threshold. Both of these systems support safe operations in certain PBN designated airspace and safe landing in adverse weather conditions at airfields around the globe. Consequently, the Authority prescribes VOR and ILS design requirements to define the required level of performance when used for these operations in Defence aircraft.

4.26 **Design Requirement (Essential).** *VOR receivers fitted to Defence aircraft must satisfy the requirements of:*

(a) *TSO-C40c VOR Receiving Equipment Operating Within the Radio Frequency Range of 108-117.95 Megahertz (MHz), or*

Superseded

(b) *ETSO-2C40c VOR Receiving Equipment Operating Within the Radio Frequency Range of 108-117.95 Megahertz (MHz).*

4.27 **Design Requirement (Essential).** *ILS receivers fitted to Defence aircraft must satisfy the requirements of:*

(a) *TSO-C34e, ILS Glide Slope Receiving Equipment Operating within the Radio Frequency Range of 328.6-335.4 Megahertz (Mhz) and TSO-C36e Airborne ILS Localizer Receiving Equipment Operating Within the Radio Frequency Range of 108-112 Megahertz (MHz), or*

(b) *ETSO-2C34f ILS Glide Slope Receiving Equipment Operating within the Radio Frequency Range of 328.6-335.4 Megahertz (Mhz), and ETSO-2C36f Airborne ILS Localizer Receiving Equipment Operating Within the Radio Frequency Range of 108-112 Megahertz (MHz).*

4.28 The performance of VOR and ILS systems used to support PBN and ILS operations may be adversely affected by external radio frequency transmissions. Operations in certain airspace regions around the globe (in particular Europe, Africa, Russia and the Middle East) may expose Defence aircraft VOR and ILS navigation systems to an increased risk of FM interference from civil radio stations. Compliance with the standards prescribed in paragraphs 4.27 and 4.28, inherently covers FM immunity for Defence aircraft VOR and ILS.

ADDITIONAL NAVIGATION SYSTEMS GUIDANCE

4.29 Further guidance on implementing the navigation systems design requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

SURVEILLANCE AND AVOIDANCE SYSTEMS

INTRODUCTION

5.1 Surveillance systems contribute to aircraft safe separation and support the provision of safe and effective air traffic control services. Aircraft avoidance systems provide warnings and alerts to aircrew of impending hazards associated with proximity to other air traffic or terrain.

5.2 While Defence aircraft without surveillance and avoidance systems would not normally be precluded from operations in civil airspace, sub-optimal routes and timings may be imposed. Therefore, fitment of surveillance and avoidance systems in Defence aircraft is, ultimately, a capability and safety decision for the capability manager.

5.3 When operating in civil airspace, Defence aircraft may present a hazard to civil aircraft if the Defence aircraft does not provide the same surveillance and avoidance systems capabilities as those required by civil NAAs for civil aircraft operations. The civil NAA standards for surveillance and avoidance systems usually provide an appropriate benchmark for surveillance and avoidance systems performance and ensure appropriate interoperability with civil aircraft in civil airspace. Military Airworthiness Codes may not prescribe standards for surveillance and avoidance systems, and civil Codes may prescribe different standards for similar operations in civil airspace. Finally, where Defence operations only present a hazard to the Defence aircraft (rather than a third party risk to other airspace users), and/or where the concept of operations for the Defence aircraft differs from that in civil aircraft (for example Terrain Awareness and Warning Systems (TAWS)), applying the civil standards to Defence aircraft may not be useful or warranted. Consequently, the Authority prescribes airworthiness design requirements for Defence aircraft surveillance and avoidance systems.

Scope

5.4 This Chapter prescribes Authority supplementation to the aircraft surveillance and avoidance systems elements of recognised civil and military Airworthiness Codes. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of the DASDRM.

SURVEILLANCE SYSTEMS DESIGN REQUIREMENTS

5.5 This section presents the Authority prescribed airworthiness design requirements for Defence aircraft surveillance systems.

Aircraft transponders

5.6 ATC transponders provide responses to interrogations from ground based secondary surveillance radar, to support aircraft safe separation and may be used by other aircraft to support traffic collision avoidance. ATC transponder equipment is mandated for all civil aircraft operating in

Superseded

certain classes of civil airspace. Some civil NAAs are mandating retrospective fitment of ATC transponder equipment with functionality that exceeds the 'basic' aircraft identification and altitude data traditionally provided by ATC transponders (eg CASA requires all aircraft operating in Australian airspace to be fitted with a Mode S transponder in specified locations and classes of airspace).

5.7 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to civil airspace in which the fitment and operation of an ATC transponder is mandated for civil aircraft, the Defence aircraft transponder must satisfy the requirements prescribed by the relevant civil NAA, as follows:*

(a) *for operations in Australian airspace, CASR Part 91 Manual of Standards*

(b) *for operations in US airspace, FAA FAR 91.215, ATC transponder and altitude reporting equipment and use*

(c) *for operations in European airspace, EASA Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS) Book 1 Subpart D Section 1, 2 or 3 as applicable*.

5.8 While lack of an ATC transponder may not preclude access to civil airspace, such access may be severely limited since the transponder affords air traffic controllers the situational awareness necessary to provide separation advice and control to airspace users, and provides other airspace users with traffic collision avoidance advice and commands in congested airspace. An ATC transponder that does not comply with the associated civil airworthiness design requirements may not provide the required performance or functionality to support air traffic control services and traffic collision avoidance, and may therefore pose a hazard to other airspace users.

Automatic Dependent Surveillance – Broadcast (ADS-B)

5.9 Automatic Dependent Surveillance – Broadcast (ADS-B) provides 'radar-like' air traffic information to support civil aviation operations in Australia, the United States and Europe. ADS-B provides transmission and reception of broadcast messages, which detail an aircraft's position (latitude and longitude), altitude, velocity, aircraft identification and other parameters. Civil NAAs have implemented a program of prescribing ADS-B fitment to civil aircraft operating in specified classes of airspace. For example, CASA has mandated ADS-B compliance for all civil aircraft operating under Instrument Flight Rules or above FL 290 in Australian airspace.

5.10 **Design Requirement (Essential).** *Where a Defence aircraft requires unimpeded access to ADS-B designated airspace, the equipment must satisfy the requirements prescribed by the relevant civil NAA, as follows:*

(a) *for operations in Australian airspace, CASA AC 21-45v2.2 Airworthiness Approval of Airborne Automatic Dependent Surveillance Broadcast Equipment*

(b) *for operations in US airspace, FAA AC 20-165B Airworthiness Approval of ADS-B Out Systems, for a 1090 MHz Extended Squitter system*

(c) *for operations in European airspace, EASA Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS) Book 1 Subpart D Section 4 – 1090 MHz Extended Squitter ADS-B.*

5.11 ADS-B equipment fitted to Defence aircraft must satisfy the ADS-B design requirements prescribed by the relevant NAA for operations in designated ADS-B airspace. Non-compliance with

Superseded

these requirements could pose a hazard to other airspace users if the equipment fails to accurately report the Defence aircraft's flight data, or incorrectly receives and / or interprets other aircraft data.

NOTE

The minimum data messages required for US and European ADS-B operations may not be achieved by ADS-B equipment that complies with the CASA requirements. While ADS B equipment compliant with CASA's airworthiness requirements may be technically capable of broadcasting all FAA and EASA mandatory data messages, the equipment may not be configured to do so, since some of the mandatory system status messages are not required by CASA. Therefore, where Defence aircraft ADS-B operations in US or European airspace are required, the minimum broadcast capabilities of Defence equipment must be verified to comply with the relevant FAA and / or EASA requirements.

Continuing airworthiness requirements for ATC transponders

5.12 **Continuing airworthiness requirement.** *ATC transponder serviceability testing should be conducted at least every two years, per the requirements detailed in FAA Part 43 Appendix F.*

5.13 ATC transponder systems require periodic testing to confirm that the system continues to generate data that meets the civil benchmark standards and can be safely used by air traffic controllers to manage associated airspace.

AVOIDANCE SYSTEMS DESIGN REQUIREMENTS

5.14 This section presents the Authority prescribed airworthiness design requirements for Defence aircraft avoidance systems.

Traffic Alert and Collision Avoidance Systems (TCAS)

5.15 The Traffic Alert and Collision Avoidance System (TCAS) monitors the traffic situation around an aircraft and provides information on the approximate bearing and altitude of other aircraft, generates collision warnings to the pilot that another aircraft is in near vicinity (Traffic Advisories (TA)) and provides suggested avoidance actions (Resolution Advisories (RA)). While civil NAAs prescribe fitment of TCAS in large passenger carrying aircraft operating in certain classes of airspace and operations, there is no consistent application of a TCAS mandate. The lack of TCAS on Defence aircraft does not preclude or limit access to civil airspace. Nevertheless, TCAS provides a safety benefit that may be warranted for Defence aircraft operations in civil airspace (or for unique military operations where aircraft are in close proximity) and a determination should be sought from the capability manager regarding the requirement for TCAS.

5.16 Only TCAS II Version 7.0/7.1 systems comply with ICAO TCAS II requirements. Where civil NAAs do prescribe TCAS fitment, the TCAS II Version 7.0/7.1 requirements are levied. Therefore, the Authority has adopted the associated civil airworthiness design requirements as the benchmark for Defence aircraft TCAS.

5.17 Design Requirement (Essential). Where TCAS is fitted in a Defence aircraft, the equipment must comply with the requirements prescribed in FAA AC 20-151C Airworthiness Approval of Traffic Alert and Collision Avoidance Systems (TCAS II) Versions 7.0 & 7.1 and Associated Mode S Transponders.

5.18 TCAS equipped aircraft conduct coordinated responses to potential conflicts to avoid mid-air collisions. A Defence aircraft fitted with a non-compliant TCAS may respond to a RA generated by

Superseded

another TCAS equipped aircraft in an uncoordinated manner, which may lead to mid-air collision. Consequently, where TCAS capability is confirmed to be required for Defence aircraft operations, the TCAS system must comply with the civil requirements to ensure compatibility with other airspace users.

Terrain Awareness and Warning Systems (TAWS)

5.19 Terrain Awareness and Warning Systems (TAWS), also known as Ground Proximity Warning Systems, provide aircrew with both aural and visual alerts to reduce controlled flight into terrain (CFIT). Civil NAAs have prescribed TAWS fitment for certain types of aircraft and operations. While some NAAs require aircraft to have TAWS, unlike other systems described in this Chapter, the lack of TAWS capability does not pose any third party risk. The decision to fit TAWS is therefore a capability decision based on the additional safety benefit provided during Defence aircraft operations.

5.20 **Design Requirement (Essential).** *Authority advice must be sought to define airworthiness design requirements for TAWS fitted to Defence aircraft.*

5.21 Circa 2021, military NAAs have not prescribed airworthiness design requirements for TAWS. Further, military aircraft often require TAWS functions and performance to provide terrain avoidance advice and commands in a 'tactical' environment that is not normally associated with civil operations.

5.22 Given the lack of military TAWS standards, the Authority has not established design requirements based on a specific civil or military standard and, instead, has adopted an approach of establishing design requirements on a case by case basis. Nevertheless, noting that the civil standards for TAWS support safe civil aircraft operations in close proximity to terrain, the civil TAWS requirements provide an appropriate safety benchmark. Consequently, TAWS compliance with the following civil requirements is likely to ensure safe TAWS operation in Defence aircraft provided that the CRE remains substantially similar to that for which the TAWS was originally certified:

(a) FAA AC 25-23 Airworthiness Criteria for the Installation Approval of a Terrain Awareness and Warning System (TAWS) for Part 25 Airplanes,

(b) FAA AC 23-18 Installation of Terrain Awareness and Warning System (TAWS) Approved for Part 23 Airplanes,

(c) EASA CS-ACNS Book 1 Subpart E Section 1 – Terrain Awareness and Warning System (TAWS), or

(d) FAA TSO-C194/EASA ETSO-C194 Helicopter Terrain Awareness and Warning System (HTAWS).

5.23 When prescribing design requirements for TAWS, the Authority will adopt a systems approach. TAWS rely on the integrity of: the terrain data, the aircraft navigation systems that establish where the aircraft is in relation to terrain obstacles, and the TAWS processing hardware and algorithms. The civil standards identified above utilise this 'systems' approach to prescribing TAWS requirements; however, they may not cater for the intended TAWS operational use in a Defence aircraft. Failure to install TAWS equipment and associated data that satisfies appropriate performance and design assurance requirements could contribute to CFIT. Consequently, the Authority will confirm airworthiness design requirements for TAWS in Defence aircraft on a case-by-case basis to ensure that appropriate TAWS requirements are defined for the proposed aircraft operations.

Superseded

CAPABILITY AND INTEROPERABILITY DESIGN REQUIREMENTS

5.24 This section presents design requirements that are not prescribed by the Authority, but identify particular capability and interoperability design considerations for establishing requirements for Defence aircraft surveillance systems.

Identification Friend or Foe (IFF)

5.25 IFF systems ensure that Defence aircraft in national and international operations are not identified by other coalition assets as 'hostile'. IFF systems that are not compliant with a design standard prescribed by coalition partners may prevent Defence aircraft from being correctly identified during operations. Where an IFF system is necessary to satisfy capability requirements, Defence requires Mark XIIA IFF systems to be fitted to Defence aircraft.

5.26 **Capability Requirement.** *IFF systems fitted to Defence aircraft should be certified to the US DoD AIMS (Air Traffic Control Radio Beacon System, Identification Friend or Foe, Mark XII/XIIA System) 03-1000B Amendment 2.*

5.27 Mark XIIA IFF systems provide the performance, security and encryption capacity required for interoperability with ADF European and US coalition partners. Per the Mode 5 IFF Capability Realisation Plan, only IFF MK XIIA systems that meet the requirements in the current version of the US DoD AIMS standards are acceptable for Defence aircraft IFF operations, including Mode 5 Level 1 and Level 2 operations.

ADDITIONAL SURVEILLANCE AND AVOIDANCE SYSTEMS GUIDANCE

5.28 Further guidance on implementing the surveillance and avoidance systems requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

OXYGEN SYSTEMS

INTRODUCTION

6.1 Defence aircraft are fitted with breathing equipment to supply oxygen, or a mixture of air and oxygen, to crew and passengers to protect against the effects of hypoxia at cabin altitudes above 10,000 feet. Hypoxia occurs whenever a physiologically inadequate amount of oxygen is available to, or is utilised by, body tissues and the brain.

6.2 Defence experience with aircraft oxygen system failures (and subsequent impact on either crew or aircraft safety) has identified shortfalls in extant Codes and associated standards promulgated by civil and military Airworthiness Authorities as described in Section 1 of this manual. Consequently, the Authority has defined airworthiness design requirements for Defence aircraft oxygen systems to supplement these Codes.

Scope

6.3 This Chapter prescribes Authority supplementation to the aircraft oxygen system elements of recognised civil and military Airworthiness Codes. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

DEFENCE AIRCRAFT OXYGEN SYSTEM DESIGN REQUIREMENTS

6.4 This section presents design requirements for oxygen systems fitted to new Defence aircraft. Additional design requirements specific to gaseous, liquid, on-board oxygen generating and chemical oxygen generating systems are presented at paragraphs 6.15 through 6.34.

6.5 **Design Requirement (Essential)**. *Defence aircraft oxygen systems must comply with the requirements of DASR ORO.60, Provision and Use of Oxygen in Aircraft.*

6.6 To provide protection against the effects of hypoxia, DASR ORO.60 requires supplemental oxygen systems to support crew and passenger breathing when the aircraft is operating at defined altitudes.

6.7 **Design Requirement (Essential)**. *Cadmium plated components must not be used in oxygen systems where they are exposed to enriched oxygen flow.*

6.8 Cadmium plated components exposed to enriched oxygen may release cadmium (which has known adverse health effects) into the oxygen flow.

6.9 **Design requirement (Essential)**. *Oxygen system venting must be shown by analysis to not pose a hazard to safe aircraft operation.*

Superseded

6.10 Routing of oxygen system vent lines into internal aircraft compartments may lead to high oxygen concentrations in the vicinity of fuel sources, which increases the risk of fire. Overboard venting usually provides an effective means of ensuring that vented oxygen does not pose a hazard to the aircraft operators or maintainers. Where venting internally is proposed, a cavity analysis must be conducted to identify any potential hazards associated with oxygen venting and the analysis must confirm that relevant oxygen system safety objectives have been met (in particular fire risk, which should be verified via a relevant Oxygen Hazards and Fire Risk Analysis (OHFRA)). Venting near fuel or ignition sources must not occur.

6.11 **Design Requirement (Essential)**. *For aircraft in which the cabin altitude is not maintained below 10,000 feet at all aircraft operating altitudes during normal operation, an indication must be provided that warns the flight crew when the cabin altitude is greater than 10,000 feet and nil or continuous oxygen flow occurs for at least 15 seconds on any oxygen regulator.*

6.12 An indication of nil or continuous flow warns the crew that a sufficient supply of oxygen (to prevent the onset of hypoxia) may not be available if the cabin altitude remains above 10,000 feet. Supplemental oxygen is required at cabin altitudes above 10,000 feet, hence a nil flow warning is required, while a continuous flow warning may be an indication of failure either before or after the regulator or of mask removal. Appropriate warning to the crew may be provided by a master caution light in conjunction with a warning panel light and an audible warning signal.

6.13 **Design Requirement (Recommended)**. *Materials used in aircraft oxygen systems should meet the requirements defined in ASTM G63 and ASTM G94, supplemented with the following:*

(a) *annealed copper tubing qualified to AS 1572-1998 should be used where tubing is exposed to oxygen pressures greater than 500 psi*

(b) *corrosion resistant steel tubing qualified to ASTM A269 should only be used where tubing is exposed to oxygen pressures less than 500 psi*

(c) *aluminium alloy tubing qualified to MIL-T-7081D should only be used where tubing is exposed to oxygen pressures less than 150 psi.*

6.14 The selection of appropriate materials for use in aircraft oxygen systems depending on oxygen pressure, and design of the storage, distribution and delivery system, reduces the likelihood of oxygen system fires. Oxygen system designs that are certified as compliant with Authority recognised Codes will have been designed to comply with materials properties that satisfy relevant safety objectives. However, for changes to designs, adoption of the requirements detailed ASTM G63 Standard Guide for Evaluating Nonmetallic Materials for Oxygen Service and ASTM G94 Standard Guide for Evaluating Metals for Oxygen Service will inform the selection of materials having the appropriate characteristics to ensure safe oxygen system design. Nevertheless, the inherent flexibility in these standards may lead to system tubing being used that does not result in associated fire hazards (and risks) being minimised so far as is reasonably practicable. Therefore, the Authority has prescribed an adaptation of these standards that represents current good practice material selection and should be reasonably practicable to implement for Defence aircraft oxygen system design changes.

Gaseous oxygen systems

6.15 In addition to the oxygen system design requirements prescribed at paragraphs 5 through 14, the following airworthiness design requirements are applicable to Defence aircraft gaseous oxygen systems.

Superseded

6.16 **Design Requirement (Essential).** *A filter with particle retention of 10 micron or less must be used in gaseous oxygen system filler valves or the level of filtration incorporated into the design must be demonstrated by analysis to afford an equivalent level of safety.*

6.17 Particulate contamination in gaseous oxygen systems, particularly high pressure systems, can result in a significantly increased likelihood of oxygen system fire, through the action of particle impact in high velocity flow environments generating sufficient heat to ignite materials. While extant civil and military oxygen system design standards require fitment of an inlet filter, this is often of a considerably higher micron rating that does not adequately capture particles known to have caused fires in Defence aircraft. However, the combination of inlet filter, maintenance practices during refilling, cleanliness of supply and additional supply filtration all assist in preventing particulate contamination of oxygen systems that could cause a fire hazard. Therefore, where inlet filtration greater than 10 micron is proposed, the designer must demonstrate through analysis that the combination of these factors affords an equivalent level of safety.

6.18 **Design Requirement (Essential).** *Pressure reduction in high pressure oxygen systems must occur at, or as close as possible to, the supply source.*

6.19 The direct supply of high pressure oxygen to oxygen system regulators or other system components results in high velocity gas flows through regulator valves and components where oxygen flow is restricted. This increases the risk of oxygen system fires through both particle impact and adiabatic heating processes. Designing high pressure piping to be as short as possible, significantly reduces the potential for these ignition mechanisms to be present.

6.20 **Design Requirement (Essential).** *Where aluminium oxygen cylinders, or composite oxygen cylinders with an aluminium liner, are proposed to be used in Defence aircraft, an analysis of the operating environment must demonstrate that the cylinder will not pose a hazard to the aircraft during operation.*

6.21 The use of aluminium or composite oxygen cylinders in aircraft increases the likelihood of the cylinder experiencing an explosive failure if it suffers a ballistic impact. Aluminium and composite cylinders are often used in civil aircraft oxygen system designs due to their improved weight versus pressure holding capability. Where an aluminium or composite oxygen cylinder is proposed for use in a Defence aircraft, the capability manager must be engaged to confirm that the Defence aircraft operating environment does not pose an increased likelihood of ballistic impact compared to the baseline aircraft.

Liquid oxygen systems

6.22 In addition to the oxygen system design requirements prescribed at paragraphs 5 through 14, the following airworthiness design requirements are applicable to Defence aircraft liquid oxygen systems.

6.23 **Design Requirement (Essential).** *Liquid oxygen systems fitted to Defence civil derivative aircraft must be certified as compliant with an approved military airworthiness code or must be certified by an Authority recognised civil NAA as having met the relevant safety objectives for aircraft oxygen systems.*

6.24 Current civil NAA airworthiness codes do not define sufficient design requirements for liquid oxygen systems. Consequently, where a civil derivative aircraft design includes liquid oxygen systems, such systems must be certified using either a recognised military airworthiness code (which will include appropriate requirements for liquid oxygen systems) or certified by an Authority recognised

Superseded

civil NAA as having met a suite of airworthiness design requirements that the Authority has determined provide an equivalent level of safety (usually defined within a Special Condition to the original NAA type certification).

6.25 **Design Requirement (Essential).** *Stabilisation times must be established and promulgated for non-stabilised liquid oxygen converters used in Defence aircraft.*

6.26 Non-stabilised liquid oxygen converters can suffer from thermal stratification, which can lead to loss of oxygen supply if the converter is moved/shaken before thermal equilibrium has been reached. Stabilisation of liquid oxygen converters can take many hours and, during this period, there will be an increased likelihood of oxygen system failure. Where a non-stabilised converter is fitted to a Defence aircraft and is designed to be replenished in-situ, the stabilisation time must be documented in the relevant aircraft maintenance publications. Where a non-stabilised converter can be removed for replenishment and allowed to stabilise prior to reinstallation, required stabilisation times must be promulgated in relevant oxygen replenishment instructions.

On-board oxygen generating systems

6.27 In addition to the oxygen system design requirements defined at paragraphs 5 through 14, the following airworthiness design requirements are applicable to Defence aircraft OBOG systems.

6.28 **Design Requirement (Essential).** *Defence aircraft OBOGS must comply with the airworthiness design requirements prescribed in:*

(a) *DEF STAN 00-970 Part 13, or*

(b) *an alternative standard agreed by the Authority.*

6.29 The oxygen system airworthiness design requirements prescribed in the Authority recognised civil Airworthiness Codes are generic in nature and do not include a complete and consistent suite of requirements for evolving oxygen system technologies such as OBOGS. Further, the civil requirements may not adequately cover aspects of military operations, such as the need for crew to be supplied with a continuous source of oxygen for the duration of flight. Consequently, the Authority has prescribed a benchmark standard, DEF STAN 00-970, which presents a complete and consistent suite of OBOGS design requirements for the military context.

6.30 **Design Requirement (Essential).** *Where the back-up oxygen supply is also used to support crew breathing during the ejection sequence, analysis must demonstrate that the back-up supply has sufficient capacity to support breathing for all crew during:*

(a) *any foreseeable OBOGS failures*

(b) *ejection following OBOGS failure.*

6.31 Using the same oxygen source for both OBOGS back-up and ejection increases the likelihood that the source will be depleted during an OBOGS failure, which may pose a hypoxia hazard to the crew if ejection above 10,000 feet is required. ADF experience has revealed that OBOGS designs suffer from failure modes that result in the crew using the back-up supply more frequently than assumed. In these circumstances, the crew may be unaware of, or unable to ascertain, the remaining capacity of the back-up oxygen supply. This may result in insufficient oxygen being available should an ejection subsequently be required at an altitude where breathing cannot be sustained. Further, given that the OBOGS relies on engine operation to supply oxygen, an engine failure at altitude (for a single engine aircraft) may lead to depletion of the back-up supply before a height is reached at which safe

Superseded

ejection can occur. The designer must confirm that the capacity of the ejection sequence oxygen supply, when also used as the OBOGS back-up, provides an adequate level of protection against hypoxia, and satisfies the associated oxygen system design safety objectives.

Chemical oxygen generators

6.32 The following airworthiness requirement is applicable to Defence aircraft chemical oxygen generators.

6.33 **Design Requirement (Essential).** *Where an oxygen system design change includes the installation of chemical oxygen generators, airworthiness design requirements for the chemical oxygen generator must be defined and proposed for Authority agreement.*

6.34 Chemical oxygen generators may pose unique hazards associated with the exothermic chemical reaction if not designed and certified for use in an aircraft environment. Authority recognised NAAs have included some requirements for chemical oxygen generators in their associated Airworthiness Codes (eg FAR 25.1450), and compliance with these requirements as part of an NAA certification will satisfy relevant oxygen system safety objectives. However, where chemical oxygen generators are not part of the original certified design, and are proposed to be fitted to a Defence aircraft, the NAA requirements may not be suitable for adoption in the military context of use. Therefore, the airworthiness requirements to be applied to the chemical oxygen generators must be defined, and proposed for Authority agreement. SAE AS 1304 Rev B Continuous Flow Chemical Oxygen Generators and SAE AS 1303 Portable Chemical Oxygen may assist designers in establishing suitable equipment and performance requirements for chemical oxygen generators, noting that these standards may require tailoring to accommodate unique military role and operating environment considerations.

INTEROPERABILITY AND CAPABILITY DESIGN REQUIREMENTS

6.35 Design attributes in Defence aircraft oxygen systems may result in interoperability constraints or fire hazards that could result in loss of an aircraft during maintenance activities (and potentially have WHS implications for personnel). Consequently, the following requirements, while not prescribed by the Authority, should be considered for aircraft acquisitions and modifications where interoperability or capability issues are determining factors.

6.36 **Interoperability design requirement.** *Gaseous and liquid oxygen replenishment couplings should comply with the requirements defined in AFIC AIR STD FG 4030, Characteristics of Gaseous Breathing Oxygen, Liquid Breathing Oxygen and Supply pressures, Hoses and Replenishment Couplings.*

6.37 Defence aircraft oxygen systems designs may adversely impact interoperability with other nations and/or continued operational availability, if they are not designed to permit replenishment using support equipment at deployed locations. In particular, civil-derivative aircraft may not be designed for interoperability.

6.38 **Capability design requirement.** *Oxygen cylinders should have an ON/OFF valve that provides a means of gradually increasing system oxygen pressure in a controlled fashion.*

6.39 Fast acting ON/OFF valves on aircraft oxygen cylinders release a high velocity ‘slug’ of oxygen that may impact on components in the distribution system, generating substantial heat and increasing the likelihood of a fire. Given that supply on/off valves in aircraft can only be operated by

Superseded

ground crew during maintenance, such fires are likely to result in capability impacts as a result of loss of the aircraft and pose a WHS hazard to personnel.

ADDITIONAL OXYGEN SYSTEM DESIGN GUIDANCE

6.40 Further guidance on implementing the oxygen systems requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

LIGHTING SYSTEMS

INTRODUCTION

7.1 Aircraft lighting systems enable the crew to: see essential flight data and aircraft information in all ambient light conditions, discern external physical conditions/features during operations (particularly during take-off and landing), implement 'see and avoid' barriers to airspace conflicts, and so on. For the majority of lighting systems, compliance with the airworthiness design requirements prescribed in an Authority recognised Airworthiness Code satisfies an appropriate benchmark for the safe design and operation of these systems in Defence aircraft. However, some lighting systems requirements associated principally with military operations (such as Night Vision Imaging Systems (NVIS) compatibility, external lighting to support formation flight, air-air refuelling lights and so on) are not, or may be only minimally, covered in civil Airworthiness Codes. Consequently, the Authority prescribes airworthiness design requirements for Defence aircraft lighting systems.

Scope

7.2 This Chapter presents Authority prescribed airworthiness design requirements for Defence aircraft lighting systems. Importantly, the design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

7.3 This Chapter does not include requirements for emergency lighting. These requirements and any associated Authority prescribed supplementation are detailed in Section 2 Chapter 6 Crash Protection. Further, there may be additional systems/equipment required to support NVIS operations (eg radio altimeter for helicopter NVIS operations) that are not included within the scope of this Chapter, but for which compliance must be verified before the aircraft can be certified as being NVIS compatible.

LIGHTING SYSTEMS DESIGN REQUIREMENTS

7.4 Lighting systems requirements may be prescribed by civil NAAs on the basis of aircraft type or to support safe operations (for example, operation under Instrument Flight Rules requires fitment of specific external lighting). Lighting systems must also be compatible with aircrew equipment (including NVIS) and support safe flight during military-unique operations such as air to air refuelling.

7.5 **Design Requirement (Essential).** *The lighting systems fitted to Defence aircraft must satisfy the minimum systems/equipment and functional requirements prescribed by any one of the Authority recognised NAAs/MAAs, as follows:*

(a) ***FAA.*** *The relevant FAR Part 23, 25, 27 or 29 lighting requirements, and the requirements prescribed in FAR 91.205 for operations in US civil airspace.*

(b) ***EASA.*** *The relevant CS 23, 25, 27 or 29 lighting requirements, and the requirements prescribed in EU CAT.IDE.A.115 or EU CAT.IDE.H.115 for operations in European civil airspace.*

Superseded

(c) ***CASA.*** *The relevant FAR/CS Part 23, 25, 27 or 29 requirements, and the requirements prescribed in CASR Part 91 Manual of Standards for operations in Australian airspace*

(d) ***USAF.*** *The relevant lighting requirements of MIL-HDBK-516C, including the requirements for 'operations in commercial airways'.*

(e) ***UK MoD.*** *The relevant lighting requirements of DEF STAN 00-970.*

7.6 Note that the preceding Authority prescribed design requirement includes both the Authority recognised civil Airworthiness Codes defined in Section 1 of this manual, plus additional operational regulations that do not form part of the basic suite of civil NAA prescribed 'design' requirements. Military Airworthiness Authorities do not prescribe 'operational regulations' for aircraft lighting in the same way as civil NAAs; however, the Authority recognised military Airworthiness Codes inherently prescribe lighting design requirements that satisfy the civil Codes requirements for operations in specified civil airspace.

7.7 **Design Requirement (Essential).** *Lighting systems required for military-unique operations must satisfy the requirements prescribed in an Authority recognised military Airworthiness Code.*

7.8 Lighting systems on Defence aircraft support safe operations in shared airspace through enabling the crew to conduct 'see and avoid' separation in low visibility and during the conduct of military operations such as formation flight. Failure to install appropriate lighting could pose a hazard to other airspace users. When establishing the lighting systems to be fitted to a Defence aircraft, the minimum systems required to support proposed operations (eg air-air refuelling, formation flight and so on) must be installed and satisfy the applicable design standards.

7.9 **Design Requirement (Essential).** *Where NVIS is intended for use in a Defence aircraft, the aircraft lighting systems must satisfy the compatibility requirements for the relevant NVIS Type and Class specified in:*

(a) *MIL-STD-3009, Lighting, Aircraft, Night Vision Imaging System (NVIS) Compatible, or*

(b) *STANAG 3224 Aircraft Interior and Exterior Lighting Night Vision Goggle (NVG) and Non-NVG Compatible.*

7.10 Aircraft NVIS generally use helmet mounted, binocular, image intensifier tubes to produce an enhanced image of the environment outside the aircraft in light conditions too low for normal flying operations or navigation by visual means. Aircraft cockpit lighting that is incompatible with NVIS can interfere with the proper operation of NVIS in two ways. Firstly, incompatible light may be reflected into the field of view of the NVIS, leading to obscuration of the outside environment by a false image. Secondly, incompatible light (either direct or reflected) can trigger the automatic gain control function of the NVIS, reducing image contrast.

7.11 Authority recognised civil Airworthiness Codes do not prescribe comprehensive NVIS airworthiness design requirements. While two published RTCA documents define functional and performance requirements for NVIS use and operations in civil aircraft, neither standard provides a comprehensive basis for establishing the compatibility of aircraft lighting with NVIS. Consequently, where NVIS is intended for use in Defence aircraft, the aircraft lighting must satisfy the NVIS compatibility requirements prescribed in the associated military standards. While the military standards only require ground test (or do not specify testing) to be conducted to demonstrate NVIS compatibility, FAA guidance includes a requirement for flight test to be conducted, particularly for helicopter NVIS operations. Designers should consider whether flight test is warranted to support verification of compliance with NVIS compatibility standards.

Superseded

7.12 Authority prescribed design requirements for NVIS equipment are presented in Section 5 Chapter 2, Aeronautical Life Support Equipment, of this manual.

ADDITIONAL LIGHTING SYSTEMS GUIDANCE

7.13 Further guidance on implementing the lighting systems design requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

ELECTRICAL SYSTEMS

INTRODUCTION

8.1 Aircraft electrical systems comprise those electrical components which generate, distribute, control and protect the supply of AC and/or DC electrical power for other systems, and provide signal and electrical interfaces between aircraft systems. Electrical systems that do not satisfy appropriate design requirements may pose hazards to safe aircraft operations by: providing inadequate or unsuitable power for essential aircraft system loads, increasing the likelihood of fire or explosion, increasing the potential for critical aircraft system failures and so on. To ensure that these hazards are not realised the Authority prescribes design requirements for aircraft electrical systems.

Scope

8.2 This Chapter presents the Authority prescribed airworthiness design requirements for Defence aircraft electrical systems and electrical wiring interconnection systems. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

ELECTRICAL SYSTEMS DESIGN REQUIREMENTS

8.3 This section presents the Authority prescribed electrical systems airworthiness design requirements applicable to Defence aircraft.

8.4 **Design Requirement (Essential).** *The aircraft's battery capacity must be evaluated to confirm that there is sufficient capacity to supply all essential loads, and to support continued safe flight and landing for the intended Defence operations.*

8.5 While the Authority recognised Airworthiness Codes define battery capacity requirements (in terms of the time that the battery must supply essential loads) for emergency operations, the actual battery capacity required to support continued safe flight and landing will be dependent on the intended operations of the Defence aircraft. Given that Defence operations are likely to vary from those assumed within the original aircraft type certification, the battery capacity must be evaluated and confirmed to be adequate for all proposed Defence operations.

8.6 **Design Requirement (Essential).** *Rechargeable Lithium-ion batteries used as a primary power source in Defence aircraft must meet the requirements prescribed in FAA AC 20-184 Guidance on Testing and Installation of Rechargeable Lithium Battery and Battery Systems on Aircraft.*

8.7 **Design Requirement (Essential).** *Non-rechargeable Lithium-ion batteries used as a power source in Defence aircraft systems and equipment must meet the requirements prescribed in Annex A - Airworthiness Requirements for Equipment with Non-rechargeable Lithium Batteries.*

Superseded

8.8 Li-ion batteries may pose additional fire hazards not normally present when lead-acid or Ni-Cd batteries are used as main aircraft power sources. Most Authority recognised Airworthiness Codes do not prescribe design requirements tailored to ensure the safety of Li-ion batteries installed in Defence aircraft, and compliance with the requirements prescribed in FAA AC 20-184 for rechargeable Lithium-ion batteries, or Annex A for non-rechargeable Lithium-ion batteries as appropriate, is therefore required.

8.9 **Design Requirement (Essential).** *Electrical loads associated with aircraft design changes must be evaluated and confirmed to be safely accommodated within the aircraft's electrical power generation capacity.*

8.10 Aircraft electrical loads are subject to constant changes as electrical components are replaced with alternatives due to design changes, obsolescence and so on. Failure to appropriately manage the electrical load can lead to overloading the power generation and distribution system, which may pose an airworthiness risk particularly during operations in an emergency.

Electrical wiring interconnection systems

8.11 Some types of wire insulation may produce toxic fumes in the event of fire, or are known to exhibit properties that notably increase the likelihood of electrical arcing as they degrade over time. The Authority approved Airworthiness Codes may not comprehensively cover the use of these wiring types, or consider the sometimes harsher environments in which this wiring must function in military aircraft. Consequently, the Authority has prescribed additional wiring interconnection system design requirements to ensure that electrical wiring systems are adequately safe for Defence aircraft applications.

8.12 **Design Requirement (Essential).** *Wiring insulation containing PVC must not be used in Defence aircraft electrical wiring interconnection systems.*

8.13 Polyvinyl chloride (PVC) releases hydrogen chloride gas when burnt or subject to high temperatures, which transforms into hydrochloric acid on contact with moisture (causing sight and breathing impairment). Consequently, PVC wiring, particularly where it is hidden or inaccessible during flight, presents a hazard to safe aircraft operations and must not be used in any fixed aircraft wiring installations. PVC insulated wiring can often be introduced into Defence aircraft through carriage of Portable Electrical Devices (PED), or use of Commercial off the Shelf (COTS) role equipment. In these circumstances, the Authority prescribed design requirements for PEDs and COTS role equipment in Section 5 Chapter 6 apply.

8.14 **Design Requirement (Recommended).** *Polyimide wiring insulation should not be used in Defence aircraft electrical wiring interconnection systems.*

8.15 Polyimide (Kapton) wiring is susceptible to hydrolysis, characterised by breakdown and cracking of the insulation material, wet arc tracking and dry arc tracking. Typically the use of polyimide wiring insulation should be avoided, or restricted from areas that expose the wire to caustic fluids or gases, where repeated flexing of the wire is required or where repeated exposure to water is expected, especially in the presence of ultraviolet light. Where the use of polyimide wiring insulation is unavoidable, appropriate management procedures should be implemented.

Superseded

8.16 **Design Requirement (Essential).** *To ensure interconnection system integrity is maintained in-service, electrical wiring interconnection system ICA must be defined and promulgated as prescribed in FAR/CS 25 Appendix H.*

8.17 In the past, Defence has experienced severe degradation of interconnection systems due to inadequate maintenance and/or poor husbandry. To ensure that interconnection systems integrity is maintained throughout the aircraft's service life, electrical wiring interconnection system ICA must developed (as required) and include: mandatory replacement times for interconnection system components, enhanced zonal inspection requirements, tasks and intervals to reduce the likelihood of ignition sources, cleaning of interconnection system components, protection and caution information to prevent contamination of interconnection systems and so on.

8.18 **Design Requirement (Essential).** *Where polyimide wiring insulation is used in Defence aircraft interconnection systems, requirements to ensure that polyimide wiring integrity is maintained in-service must be defined and promulgated.*

8.19 Polyimide wiring insulation has historically been a challenge for Defence to manage, often due to the harsher environments in which Defence aircraft operate. This has resulted in degradation of the wiring insulation and loss of interconnection system integrity. The unique features of polyimide wiring insulation may demand different maintenance regimes to those promulgated in ICA for other wiring insulation. Therefore, the need for specific ICA for polyimide insulated wiring installed in Defence aircraft must be considered, and developed and promulgated where required.

8.20 **Design Requirement (Essential).** *In-service management requirements must be defined and promulgated, for any lead-free solder used in Defence aircraft electrical systems or electrical/ electronic equipment.*

8.21 The use of lead-free solder in aircraft applications has highlighted a number of potential hazards related to the solder's ability to maintain an effective electrical joint over time. Nevertheless, EU legislation has resulted in the adoption of lead free solder in many aircraft components, including wiring interconnection systems. Recent FAA research has highlighted the risks and challenges associated with management of lead-free solder, including reliability of solder joints, tin whisker susceptibility, maintenance/repair requirements, configuration control and obsolescence. Provided that lead free solder is appropriately managed, its use on Defence aircraft does not pose an airworthiness risk. Therefore, appropriate in-service management requirements must be defined and promulgated for any lead-free solder use on Defence aircraft.

ELECTRICAL SYSTEM CAPABILITY DESIGN REQUIREMENTS

8.22 Aircraft electrical power demands do not remain constant over the aircraft's service life. All aircraft are subject to design changes and these changes often result in increased power requirements. To avoid costly retrofit of increased power generation capacity, potential future power requirements should be considered during initial aircraft design or major changes to the electrical supply and interconnection system, and a determination made whether the power generation and distribution systems provide an acceptable level of growth capacity. DEF STAN 00-970 requires an additional power generation capacity of at least 50% greater than the maximum continuous demand, and 10% growth capacity for interconnection systems. While not an Authority prescribed design requirement, these additional generating capacity and interconnection system requirements represent a reasonable benchmark for Defence aircraft.

Superseded

8.23 **Capability Design Requirement.** *Additional power generation and distribution capacity should be considered during initial aircraft electrical power system design, or major changes to the electrical supply system, to accommodate future potential growth in power demand.*

8.24 **Capability Design Requirement.** *Additional interconnection system capacity should be considered during initial electrical wiring interconnection system design, or major changes to the interconnection system, to accommodate future potential growth.*

ADDITIONAL ELECTRICAL SYSTEM DESIGN GUIDANCE

8.25 Further guidance on implementing the aircraft electrical systems design requirements prescribed in this chapter can be provided by the chapter sponsor.

Annex:

A. Airworthiness Requirements for Equipment with Non-rechargeable Li-Ion Batteries

Superseded

ANNEX A - AIRWORTHINESS REQUIREMENTS FOR EQUIPMENT WITH NON-RECHARGEABLE LI-ION BATTERIES

AIRWORTHINESS REQUIREMENTS FOR EQUIPMENT WITH NON-RECHARGEABLE LI-ION BATTERIES

CONTENTS

CHAPTER 1 - Introduction

(a) Purpose

(b) Scope

(c) Non-rechargeable Lithium cells, Batteries and Batteries within End Items Covered in this Annex

(d) Background

CHAPTER 2 - Installation of Lithium Batteries on Aircraft

(a) Certification Process

(b) Acceptable Means of Compliance (MOC) for Installation Approval

(c) Test Requirements

(d) Means of Compliance Testing and Validation

(e) System Safety Assessment

(f) Software

(g) Complex Electronic Hardware

(h) State of Charge

(i) Flammability

(j) Instructions for Continued Airworthiness (ICA)

CHAPTER 3 - Maintenance and Operational Considerations for Lithium Batteries

(a) Introduction

(b) Aircraft Battery Maintenance

(c) Aircraft Battery Replacement

(d) Aircraft Battery Storage and Handling

Superseded

Appendix A. Related Regulations and Documents

A.1 Regulations

A.2 Advisory Circulars

A.3 Orders and Handbooks 3

A.4 Other

A.5 Industry Documents

Appendix B. Terms and Definitions

Appendix C. Previously Issued Non-rechargeable Lithium Battery Special Conditions for Transport Airplanes

Appendix D. Guidance for Installing Non-rechargeable Lithium Batteries on Transport Airplanes

Appendix E. Safety Objectives and MoC for Installation of Non-rechargeable Lithium Batteries on Rotorcraft

E.1 Safety Objectives (SO's)

E.2 Method of Compliance (MOC)

E.3 Part 27 and 29 Compliance

Appendix F. Certification considerations of Non-Rechargeable Lithium Batteries on Small Airplanes

CHAPTER 1 - INTRODUCTION

1. Purpose

1.1. This Annex provides an acceptable means to show compliance to the airworthiness requirements for installed non-rechargeable Lithium cells, batteries and batteries within end items on aircraft as defined in RTCA, Inc., document RTCA DO-227A, Minimum Operational Performance Standards for Non-Rechargeable Lithium Batteries. This Annex provides guidance on how to obtain installation approval for installed non-rechargeable Lithium cells, batteries and batteries within end items on aircraft.

1.2. The guidance in this Annex is intended for battery manufacturers, installers, maintenance personnel, and users of installed non-rechargeable lithium cells, batteries and batteries within end items on aircraft. The term "must" within this Annex, refers to mandatory requirements necessary to show compliance.

1.3. For the purpose of this Annex, all installed non-rechargeable lithium cells, batteries and batteries within end items will be referred to as lithium batteries.

2. Scope

2.1. Chapter 2 of this Annex applies to the certification of installed lithium batteries on aircraft approved pursuant to Title 14 of the Code of Federal Regulations (14 CFR) parts 23, 25, 27, and 29 for:

1. 2.1.1. Type certificates (TC)

Superseded

1. 2.1.2. Amended type certificates (ATC)

1. 2.1.3. Supplemental type certificates (STC)

1. 2.1.4. Amended supplemental type certificates (ASTC)

1. 2.1.5. Parts manufacturer approvals (PMA).

2.2. Chapter 3 of this Annex provides guidance on maintenance and operational considerations for lithium batteries on aircraft.

3. Non-rechargeable Lithium cells, Batteries and Batteries within End Items Covered in this Annex

3.1. Lithium batteries are installed in various aircraft types and serve various purposes. Lithium batteries are of different sizes, chemistries, and produced under different manufacturing processes. They are also of different levels of complexity. Some of the benefits of lithium batteries include weight savings, high energy density per unit weight and per unit volume, relatively constant voltage during discharge, good low-temperature performance, and long shelf life. Because of their high energy content and potential thermal instability, lithium batteries can present hazards if improperly designed, tested, used, and/or stored. Some of the uses for lithium batteries on today's aircraft include, but are not limited to:

1. 3.1.1. Emergency Locater Transmitters

1. 3.1.2. Defibrillators

1. 3.1.3. Back up batteries for avionics equipment

1. 3.1.4. Special function batteries (such as flashlights, electronic equipment, life vests, safety equipment, avionics equipment, communications equipment, and emergency medical equipment).

1. 3.2. Lithium batteries have certain failure and operational characteristics, as well as maintenance requirements that differ significantly from those of aircraft nickel-cadmium and lead-acid non-rechargeable batteries. The introduction of lithium batteries into aircraft raises some concern about associated battery monitoring systems (such as temperature or state of charge) and should be evaluated and tested regarding the expected extremes in the aircraft operating environment. Lithium batteries typically have different electrical impedance characteristics than lead-acid or nickel-cadmium batteries. Other components of the aircraft electrical system should be evaluated regarding these characteristics as a system.
3.3. Lithium batteries have certain failure conditions due to impurities, manufacturing defects, foreign object deposit or abuse/misuse of the battery. These conditions have known to create conditions that may result in thermal runaway (per RTCA DO-227A, Minimum Operational Performance Standards for Non-Rechargeable Lithium Batteries). A thermal runaway results from the initiation of an irreversible exothermic chemical reaction within the cell causing an uncontrollable release of internal electrical and chemical energy resulting in a rapid and accelerating temperature rise to a peak, with an accompanying collapse of cell voltage, and the chemical decomposition of metallic Lithium.

4. Background

4.1. The proposed use of lithium batteries for equipment and systems on the aircraft has prompted the Federal Aviation Administration (FAA) to review the adequacy of its guidance.

Superseded

4.2. At present, there is limited in-service experience with the use of lithium battery technology in applications on aircraft. However, users of this technology from aircraft operators to personal computer users, wireless manufacturers, and the electric vehicle industry have noted safety problems with lithium batteries. These conditions may result from imbalance, reverse charge over-discharging, flammability of cell components and internal cell defects. In general, lithium batteries are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (thermal runaway) than nickel-cadmium or lead-acid batteries. Results of the above mentioned failures could lead to a potentially dangerous smoke, fire and/or fume event.

4.2.1. Fast or Imbalanced discharging. Fast discharging or an imbalanced discharge of one cell of a multi-cell battery may create an overheating condition that could result in an uncontrollable venting condition, leading to a potential thermal event or an explosion.

4.2.2. Flammability. Unlike nickel-cadmium and lead-acid batteries, lithium batteries use higher energy and current in an electrochemical system to maximize energy storage of lithium. Some lithium battery manufacturers use liquid electrolytes and/or cathodes which is extremely flammable and/or explosive. The electrolyte and cathode, as well as the electrodes, can serve as a source of fuel for an external fire if the battery casing is breached.

4.2.3. Internal Failures. In general, these batteries are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (i.e., thermal runaway) than their nickel-cadmium or lead-acid counterparts. The metallic lithium can ignite, resulting in a self-sustaining fire or explosion.

CHAPTER 2 - INSTALLATION OF LITHIUM BATTERIES ON AIRCRAFT

1. **Certification Process.** This chapter provides certification guidance for the installation of lithium batteries on aircraft.

2. Acceptable Means of Compliance (MOC) for Installation Approval

2.1. **Certification Plan.** Prepare a certification plan that provides a method of compliance to the airworthiness regulations, including special conditions (if any) for the installation of the lithium batteries on the aircraft. We recommend submitting the certification plan early in the process. Include the following items at a minimum:

1. 2.1.1. Project description and schedule

1. 2.1.2. System description, including a description of the aircraft system interfaces and any aircraft system modifications made to accommodate the aircraft battery system installation

1. 2.1.3. System safety assessment

1. 2.1.4. Certification basis and MOC, including itemized MOC to all applicable requirements or special conditions

1. 2.1.5. Communication and coordination of the test plan(s)

1. 2.1.6. Conformity plan

1. 2.1.7. Instructions for continued airworthiness

1. 2.1.8. Compliance and substantiation documentation.

Superseded

2.2. **Compliance Checklist.** Lithium battery installations must meet all applicable airworthiness regulations applicable to the product and all applicable special condition imposed. The installations should also meet the guidance in this chapter and the applicable airworthiness regulations. Table 2 provides a guide to airworthiness regulations that may be applicable.

Note: For 14 CFR part 23, Table 2 lists applicable regulations with Amendment 23-64. Circa 2021, the Authority does not recognise FAR 23 Amendment 23-64. Consequently, for Defence aircraft having a FAR 23 primary certification code, amendment levels should use equivalent subpart regulations at the applicable amendment level respectively.

Table 2. Airworthiness Regulations Concerning Lithium Battery Installations

21.50(b)	Instructions for Continued Airworthiness and Maintenance Manuals
25/27/29.301	Loads
23.2210	Structural design loads
25/27/29.303	Factor of safety
23.2230	Limit and ultimate loads
25/27/29.305	Strength and deformation
23.2235	Structural strength
23.2205	Interaction of systems and structures
25/27/29.307	Proof of structure
25.581	Lightning protection
27/29.610	Lightning and Static Electricity protection
25/27/29.785	Seats, Berths, Litters, Safety Belts and Harnesses
23.2265	Special factors of safety
23.2270	Emergency conditions
25/27/29.787(b)	Cargo baggage compartments
23.2315(a)	Means of egress and emergency exits

Superseded

25/27/29.831	Ventilation (Smoke and Toxicity)
23.2320(c)	Occupant physical environment
25/27/29.853	Compartment interiors (Flammability)
23.2325	Fire protection
23/25/27/29.863	Flammable fluid fire protection
25.869	Fire protection: systems
29.1359	Electrical system fire and smoke protection
23.2330	Fire protection in designated fire zones and adjacent areas
23.2440	Powerplant fire protection
25/27/29.1301/23.2250(a)	Design and construction principles
23.2605	Installation and operation
25/27/29.1309/23.2510	Equipment, systems, and installations
25/27/29.1316	Electrical and electronic system lightning protection
25/27/29.1317	High–intensity Radiated Fields (HIRF) protection
25/27/29.1322	Warning, caution, and advisory lights
25/27/29.1351	Electrical systems and equipment, general
25/29.1353	Electrical equipment and installations
27.1353	Storage battery design and installation
23.2525	System power generation, storage, and distribution
23.2500	Airplane level systems requirements
25/29.1355	Distribution system

Superseded

25/27/29.1357	Circuit protection devices
25/29.1363	Electrical system tests
23/25/27/29.1529	Instructions for Continued Airworthiness
25/27/29.1581	General (Aircraft Flight Manual)
23.2620	Airplane flight manual
25/27/29.1583	Operating limitations
25/27/29.1585	Operating procedures
23.2335	Lightning protection
25/27/29.1541	General (Markings and Placards)
23.2610	Instrument markings, control markings, and placards
25/29.1431	Electronic equipment
27.1365	Electric cables
27.1367	Switches
23.2600	Flightcrew interface
23.2610	Instrument markings, control markings, and placards
27/29.1559	Limitations placard

1.

1. 2.2.1. Additional requirements (beyond those listed in Table 2) and method of compliance pertaining to lithium batteries are the following:

i. 2.2.1.1. ***For Part 23 Certificated Aircraft:*** See installation guidance in Appendix F of this Annex that addresses installing non-rechargeable lithium battery in part 23 airplanes.

ii. 2.2.1.2. ***For Part 25 Certificated Aircraft:*** Non-rechargeable lithium batteries are considered to be novel and unique for the purposes of aircraft design and certification. As such, special conditions (SCs) for non-rechargeable lithium battery installations are required on transport category airplanes. Appendix C of this Annex provides typical non-rechargeable lithium battery SCs.

Superseded

Applicants, who elect to follow the SCs in Appendix C of this Annex for non-rechargeable lithium battery installations, should raise a suitable MCRI detailing these SCs. An acceptable method of compliance (MOC) with the non-rechargeable lithium battery SCs in Appendix C of this Annex and related Part 25 requirements is provided in Appendix D of this Annex. Appendix D of this Annex also provides guidance related to the applicability statements in previously issued non-rechargeable lithium battery SCs.

iii. 2.2.1.3. ***For Parts 27 and 29 Certificated Rotorcraft:*** For rotorcraft, see Appendix E of this Annex for safety objective requirements and means of compliance.

iv. 2.2.1.4. For Button and/or Coin cell batteries (less than 2Wh): The use of Underwriters Laboratories (UL) 1642 Standard is an acceptable MOC for showing that Safety Objectives 1 through 6 are met for 2 watt-hours of energy button/coin sized non-rechargeable lithium batteries . Meeting the minimum performance standard for TSO C142b-7 is an acceptable means of showing compliance for cells or batteries less than 5 Wh.

v. 2.2.1.5. ***For all aircraft in general:*** Interconnection of lithium battery cells in battery packs introduces failure modes that require unique design considerations, such as provisions for thermal management. Based on laboratory testing and events, both independent of aviation and within actual aviation applications, including the events of 2013, the FAA now more fully recognizes potential hazards and failure modes associated with non-rechargeable lithium batteries including:

– 2.2.1.5.1. *Internal failures:* In general, lithium batteries are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (i.e., thermal runaway) than their nickel-cadmium or lead-acid counterparts. These failures can result in toxic, flammable, or corrosive fluid leakage, gas venting, fire and explosion.

– 2.2.1.5.2. *Fast or imbalanced discharging:* Fast discharging or an imbalanced discharge of one cell of a multi-cell battery may create a thermal runaway that could result in an uncontrollable venting of corrosive flammable gases, fluid leakage, fire and explosion.

– 2.2.1.5.3. *Flammability:* Lithium batteries contain more energy and deliver higher currents than nickel cadmium and lead acid batteries of similar size, and may use liquid electrolytes that can be extremely flammable. The electrolyte, as well as the electrodes, can be fuel for an external fire if the battery casing is breached.

1. 2.2.2. Some known potential hazards and failure modes associated with non-rechargeable lithium batteries are:

i. 2.2.2.1. *Internal failures:* In general, these batteries are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (i.e. thermal runaway) than their nickel-cadmium or lead-acid counterparts. The metallic lithium can ignite, resulting in a self-sustaining fire or explosion.

Superseded

ii. 2.2.2.2. *Fast or imbalanced discharging:* Fast discharging or an imbalanced discharge of one cell of a multi-cell battery may create an overheating condition that results in an uncontrollable venting condition, which in turn leads to a thermal event or an explosion.

iii. 2.2.2.3. *Flammability:* Unlike nickel-cadmium and lead-acid batteries, lithium batteries use higher energy and current in an electrochemical system that can be configured to maximize energy storage of lithium. They also use liquid electrolytes that can be extremely flammable. The electrolyte, as well as the electrodes, can serve as a source of fuel for an external fire if the battery casing is breached.

3. Test Requirements

3.1. **Environmental Test Requirements.** Lithium battery systems on aircraft must meet environmental qualification standards in:

1. 3.1.1. RTCA/DO-160G, Environmental Conditions and Test Procedures for Airborne Equipment, dated December 8, 2010, or the most recent revision

1. 3.1.2. RTCA DO-227A, Minimum Operational Performance Standards for Non-Rechargeable Lithium Batteries, dated September 21, 2017

1. 3.1.3. These environmental tests are representative of the conditions that the battery system may encounter during its life cycle. Consider the following areas when determining the scope and type of environmental tests:

i. 3.1.3.1. Equipment configuration

ii. 3.1.3.2. Installation specific environment encountered on in-service platforms

iii. 3.1.3.3. Duration of exposure periods

iv. 3.1.3.4. Geographical locations

v. 3.1.3.5. Frequency of environmental occurrences alone or in combination with other approved systems.

4. Means of Compliance Testing and Validation

4.1. **Ground and Flight Test Requirements for Installed Lithium Batteries**

1. 4.1.1. When ground and/or flight tests are required per the compliance checklist for the project, the tests should be performed to demonstrate the lithium battery systems and the systems in which they are installed will perform their intended functions.

1. 4.1.2. When ground and/or flight tests are required per the compliance checklist for the project, they should be performed to demonstrate the lithium battery systems and the systems in which they are installed will not have any adverse effect on the aircraft.

1. 4.1.3. When an EMI/RFI test is required per the compliance checklist of the project. The electromagnetic compatibility test should be performed to determine the installation of the lithium battery does not have any adverse effect on aircraft systems and that the aircraft systems do not have any adverse effect on the lithium battery. Demonstrate the battery system functions during all intended aircraft operation.

5. System Safety Assessment

Superseded

5.1. Perform a system safety assessment to show compliance with 25/27/29.1309, 23.2510 and all applicable special conditions/requirements. This assessment should address concerns associated with the installation of the lithium batteries, the possibility of direct (or indirect) injury to a person, any adverse effect on crew function, or any adverse effect on other aircraft equipment and systems. These adverse effects could be a result of normal operation or a failure in the lithium batteries. Your system safety assessment should consider, but not be limited to, the following:

1. 5.1.1. The level of hazards associated with installation and use of lithium batteries

1. 5.1.2. Whether the lithium batteries installation design assurance level is appropriate for performance and safety requirements based on location and intended function

1. 5.1.3. No interference due to any failures of the lithium batteries

1. 5.1.4. System separation and zonal analysis

1. 5.1.5. Impact on flight crew and egress procedures

1. 5.1.6. Protection against fire, smoke, and electrical shock hazards

1. 5.1.7. Other safety analysis appropriate to the system being installed

1. 5.1.8. Statement of compliance for each requirement.

5.2. The safety assessment of the lithium battery installation should address the battery system, the aircraft interface, and the aircraft functional loads to which the battery system provides power.

6. **Software.** All lithium batteries that use software should comply with RTCA/DO-178C, Software Considerations in Airborne Systems and Equipment Certification, or equivalent, for the appropriate design assurance level. You can find additional guidance in the following FAA ACs:

6.1. AC 25.1309-1A, System Design and Analysis

6.2. AC 29-2C, Certification of Transport Category Rotorcraft

6.3. AC 27-1B, Certification of Normal Category Rotorcraft

6.4. AC 23.1309-1E, System Safety Analysis and Assessment for Part 23 Airplanes

6.5. AC 20-115D, Airborne Software Development Assurance Using EUROCAE ED-12( ) and RTCA DO-178( ).

7. **Complex Electronic Hardware.** All lithium batteries hardware that contains complex electronic hardware should comply with the most recent revision, of AC 20-152, RTCA, Inc., Document RTCA/ DO-254, Design Assurance Guidance for Airborne Electronic Hardware, dated June 30, 2005.

8. **State of Charge.** Lithium batteries that are not maintained at a high enough state of charge degrade at a significantly higher rate.

9. Flammability

Superseded

9.1. Unlike nickel-cadmium and lead-acid cells, some types of lithium cells use electrolytes in a liquid state known to be flammable. This material can serve as a source of fuel for an external fire if a cell failure occurs. Lithium batteries have the potential to ignite spontaneously or experience an uncontrolled temperature and pressure increase, resulting in propagation to adjacent cells.

9.2. Pursuant to 23.2325, 23.2330, 25/27/29.853, 25/27/29.863, and 25.869, aircraft battery equipment must meet the flammability requirements of that ensure the protection of structure and critical systems. Test the materials to ensure they meet applicable certification requirements.

9.3. Pursuant to Part 25, Appendix F, the FAA Aircraft Materials Fire Test Handbook, DOT/FAA/AR-00/12 Chapters 1 through 10 and Chapter 15, describes an acceptable method of compliance for material Test Criteria and Procedures. Pursuant to 25.856(a), Appendix F, Part VI, Amendment 25-111, provides the criteria for using exposed thermal and acoustic insulation material as part of the battery equipment. Refer to the test methods described by AC 25.856-1, Thermal/Acoustic Insulation Flame Propagation Test Method Details.

10. Instructions for Continued Airworthiness (ICA)

10.1. During the certification process of the lithium batteries, complete the ICA in accordance with the following:

1. 10.1.1. Section 21.50(b)

1. 10.1.2. Sections 23/25/27/29.1529

1. 10.1.3. Sections 25.1709 and 25.1729

1. 10.1.4. Part 23, appendix A, Part 27/29 appendix A, part 25 appendix H

1. 10.1.5. FAA Order 8110.54, Instructions for Continued Airworthiness, Responsibilities, Requirements, and Contents.

10.2. Develop the ICA so it is compatible with other maintenance instructions for the aircraft.

10.3. Refer to Chapter 3 of this Annex for additional details specific to the maintenance of lithium batteries on aircraft.

10.4. The ICA should also include, but not limited to, the following information:

1. 10.4.1. Specifics of the lithium battery installation, including individual component part numbers and any other unique installation requirements

1. 10.4.2. Electrical wiring diagrams/schematics, electrical equipment drawings

1. 10.4.3. Configuration control, storage instructions.

10.5. The ICA must contain the recommended battery manufacturer’s maintenance and inspection requirements to ensure the batteries whose function is required for safe operation of the aircraft will function when installed in the aircraft. The ICA must contain:

1. 10.5.1. Operating instructions and equipment limitations in an installation maintenance manual.

1. 10.5.2. Installation procedures and limitations sufficient to ensure cells or batteries, when installed according to the installation procedures, still meet the airworthiness

Superseded

requirements of the aircraft. The limitations must identify any unique aspects of the installation.

1. 10.5.3. Maintenance requirements for measurements of battery capacity at appropriate intervals to ensure the batteries whose function is required for safe operation of the aircraft will perform their intended function when installed in the aircraft.

1. 10.5.4. Scheduled servicing information to replace batteries at the battery manufacturer's recommended replacement time.

1. 10.5.5. Maintenance and inspection requirements to visually check for battery and/or charger degradation.

1. 10.5.6. Maintenance instructions, basic control and operation, testing, servicing, maintenance schedule, inspection, troubleshooting, removing and replacing parts, repairs, special tools, fixtures and equipment, component manual.

10.6. The ICA should also contain maintenance procedures for lithium batteries in spares storage to prevent the replacement of batteries with batteries that have experienced degraded charge retention ability or other damage due to prolonged storage.

10.7. The ICA must contain instructions to replace batteries based on the battery manufacturer maintenance manual. Replacement of individual cells within a lithium battery must be approved by the battery manufacturer and the DASA. Do not mix cells from different manufactures within a lithium battery, unless an alternate means proposed by the OEM and approved by the DASA exists.

CHAPTER 3 - MAINTENANCE AND OPERATIONAL CONSIDERATIONS FOR LITHIUM BATTERIES

1. **Introduction.** Lithium batteries can be hazardous if not maintained and handled properly. This chapter provides guidance for maintenance considerations for aircraft lithium batteries.

2. **Aircraft Battery Maintenance.** Follow each battery manufacturer's maintenance and inspection requirements for their specific aircraft lithium battery. In-service performance of lithium batteries for a given installation will depend on several factors that include but are not limited to the following:

2.1. ***Lithium Battery Chemistry.*** The electrolyte used in lithium batteries can be a highly reactive substance, and care must be observed in maintaining the lithium batteries in accordance with the OEM maintenance manual.

2.2. ***Age.*** To determine the life and age of the lithium battery, record the installation date of the battery. During normal battery maintenance, document battery age in either the aircraft maintenance log or the shop maintenance log. Do not keep batteries in service longer than recommended by the battery manufacturer.

2.3. ***State of Charge.*** State of charge of the lithium battery is determined by the cumulative effect of discharging the battery. Therefore, safeguards must be implemented to ensure the aircraft does not begin flight with a battery not sufficiently charged to accomplish its intended function.

2.4. State of Health. Determine the state of health of the lithium battery by recording the following:

1. 2.4.1. Length of time the battery has been in service.

Superseded

1. 2.4.2. The State of Charge of the battery. The output of this function may be used for dispatch or maintenance purposes.

1. 2.4.3. Any activation of temporary safety devices such as resettable fuses or positive temperature coefficient (PTC), if present in the design.

2.5. **Mechanical Integrity.** To ensure proper mechanical integrity, the battery must be installed and connected correctly and be free of any physical damage. The build-up of explosive gases can be avoided by incorporating positive battery and battery compartment venting systems. Check periodically to ensure the venting system is securely connected and oriented in accordance with the maintenance manual's installation procedures. Follow the procedures approved for the specific aircraft and battery system to ensure the battery system is capable of delivering specified performance. The venting system should take into account specific installation requirements of the aircraft.

2.6. **Shop-Level Maintenance Procedures.** Shop procedures must follow the battery manufacturer's recommendations.

2.7. **Aircraft Battery Inspection.** Evidence of battery failure can sometimes be detected by a general visual inspection. Battery manufacturer-recommended inspections should include, but not be limited to, the following actions:

1. 2.7.1. Inspect battery terminals and all other connections for evidence of corrosion, pitting, arcing, and burns. Clean as required.

1. 2.7.2. Inspect the battery for improper installation (loose terminal screws, battery terminal links, or connector).

1. 2.7.3. Inspect the battery mounting.

1. 2.7.4. Inspect for evidence of physical damage.

2.8. Prior to installation on aircraft batteries in a rotable stock (which are parts and components that are easily exchanged between product) must be functionally checked at the battery manufacturer's recommended inspection intervals. Some failure modes may include degraded charge retention capability, settling of particulates, or other damage due to prolonged storage.

3. Aircraft Battery Replacement

3.1. Make sure replacement batteries are in airworthy condition. Refer to the battery manufacturer maintenance manuals for proper maintenance of lithium batteries. Refer to the aircraft maintenance procedures for replacement of lithium batteries.

3.2. The ICA should include the battery manufacturer's requirements for the battery mandatory replacement schedule and periodic maintenance.

3.3. Installation of lithium batteries differs from aircraft system to aircraft system. Refer to the applicable aircraft manuals to remove and install batteries.

3.4. When replacing batteries, check for corrosion and moisture on the battery interfaces.

3.5. The maintenance record should reflect all battery replacements. Record the expiration date of the battery.

Superseded

3.6. The lithium batteries should be replaced with an approved battery for the specific aircraft application.

3.7. Deep discharge may result in potential unsafe condition. Replace the battery based on the battery manufacturer's recommendation.

4. Aircraft Battery Storage and Handling

4.1. Follow the battery manufacturer's recommended storage procedures that will permit users to achieve the best results from their batteries.

4.2. Storage requirements vary with the battery type. Record the date of 100% state of charge and, if the battery is not used within the battery manufacturer's recommended interval, service the battery per the battery manufacturer's recommendation.

4.3. Handling procedures and precautions vary with battery size and configuration. Follow the battery manufacturer's recommendation to prevent mishandling of the battery.

4.4. Follow the battery manufacturer's recommendation procedure to prevent electrostatic discharge during storage and handling.

4.5. For packaging and shipping, follow the battery manufacturer's recommended procedures.

4.6. Check batteries before use for any leakage or deformity. Do not use the batteries if there is any evidence of leakage or deformity.

4.7. Aircraft vibration and/or contact oxidation can result in poor electrical connections. Ensure proper connector maintenance procedures are followed.

4.8. Observe the following precautions when handling lithium batteries:

1. 4.8.1. Do not store lithium batteries with other hazardous or combustible materials.

1. 4.8.2. Do not heat or incinerate lithium batteries.

1. 4.8.3. Do not dispose of lithium batteries with other waste unless allowed by applicable regulations.

1. 4.8.4. Use special care in handling lithium batteries. Do not open, puncture, crush, disassemble, or subject batteries to physical abuse.

4.9. Lithium batteries can be a personal safety hazard due to the possibility of lethal shock and must be labelled to clearly indicate the hazard.

4.10. Follow all battery manufacturer's recommended safety precautions and procedures.

4.11. Material Safety Data Sheets must be enclosed with lithium batteries for shipping.

4.12. Wear protective clothing before handling and disposing of lithium batteries.

Appendices:

A. Related Regulations and Documents

B. Terms and Definitions

Superseded

C. Previously Issued Non-rechargeable Lithium Battery Special Conditions for Transport Airplanes

D. Guidance for Installing Non-rechargeable Lithium Batteries on Transport Airplanes

E. Safety Objectives and MoC for Installation of Non-rechargeable Lithium Batteries on Rotorcraft

F. Certification Considerations of Non-rechargeable Lithium Batteries on Small Airplanes

Superseded

APPENDICES

APPENDIX A - RELATED REGULATIONS AND DOCUMENTS

RELATED REGULATIONS AND DOCUMENTS

A.1 Regulations	
14 CFR part 21	Certification procedures for products and Parts
14 CFR part 23	Airworthiness standards: Normal Category Airplanes
14 CFR part 25	Airworthiness standards: Transport Category Airplanes
14 CFR part 27	Airworthiness standards: Normal category rotorcraft
14 CFR part 29	Airworthiness standards: Transport category rotorcraft
14 CFR part 43	Maintenance preventive maintenance rebuilding and alteration
14 CFR part 145	Repair stations
A.2 Advisory Circulars	
AC 20-115D	Airborne Software Development Assurance Using EUROCAE ED-12 and RTCA DO-178()
AC 20-128A	Design Considerations for Minimizing Hazards caused by Uncontained Turbine Engine and Auxiliary Power Unit Rotor Failure
AC 20-135	Powerplant Installation and Propulsion System Component Fire Protection Test Methods Standards and Criteria
AC 20-136B	Aircraft Electrical and Electronic System Lightning Protection
AC 20-152	RTCA Inc. Document RTCA/DO-254 Design Assurance Guidance for Airborne Electronic Hardware
AC 20-158A	The Certification of Aircraft Electrical and Electronic Systems for Operation in the High intensity Radiated Fields (HIRF) Environment

Superseded

AC 21-16G	RTCA Document DO-160 versions D/ E/ F and G “Environmental Conditions and Test Procedures for Airborne Equipment”
AC 23.1309-1E	System Safety Analysis and Assessment for Part 23 Airplanes
AC 23-17C	Systems and Equipment Guide for Certification of Part 23 Airplanes and Airships
AC 25.1309-1A	System Design and Analysis
AC 25-16	Electrical Fault and Fire Prevention and Protection
AC 25-1581-1	Airplane Flight Manual
AC 27-1B	Certification of Normal Category Rotorcraft
AC 29-2C	Certification of Transport Category Rotorcraft
AC 43.13-1B	Acceptable Methods Techniques and Practices-Aircraft Inspection and Repairs
AC 43.13-2A	Acceptable Methods Techniques and Practices-Aircraft Alterations
AC 120-16	Air Carrier Maintenance Programs
AC 120-42A	Extended Range Operation with Two Engine Airplanes (ETOPS)
A.3 Orders and Handbooks	
FAA Order 8110.4C	Type Certification
FAA Order 8110.42	Parts Manufacturer Approval Procedures
FAA Order 8110.54	Instructions for Continued Airworthiness Responsibilities Requirements and Content
	FAA Aircraft Materials (www.fire.tc.faa.gov)
	Fire Test Handbook (Aircraft Materials Fire Test Handbook)

Superseded

A.4 Other	
DOT/FAA/AR-04/26	Flammability Assessment of Bulk-Packed Non-rechargeable Lithium Primary Batteries in Transport Category Aircraft June 2004
A.5 Industry Documents	
SAE ARP 4754	Guidelines for Development of Civil Aircrafts and Systems
SAE ARP 4761	Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment
RTCA DO-178C	Software Considerations in Airborne Systems and Equipment Certification
RTCA DO-254	Design Assurance Guidance for Airborne Electronic Hardware
RTCA DO-227A	Minimum Operational Performance Standards for Non-Rechargeable Lithium Batteries dated September 2017
RTCA DO-160G	Environmental Conditions and Test Procedures for Airborne Equipment

Superseded

TERMS AND DEFINITIONS

For purposes of this Annex, the following definitions apply:

Battery Cell. In a battery, a cell is a single energy or charge-storing unit within a pack of cells that form the battery. Each cell has a voltage rating that is combined with the other cells' voltages to form the overall battery voltage rating.

Battery. One or more electrically connected cells, assembled in a single container having positive and negative terminals. A battery may include inter-cell connectors and protective and other devices.

Battery System. One or more electrically connected batteries that provide power to equipment. A battery system may include a charger, controlling circuitry and means for monitoring of battery temperature, battery state, and current as well as system testing and related functions.

Charged Battery. A battery that has been fully charged in accordance with the battery battery manufacturer's instructions or as defined in the design documentation.

Serviced Battery. A battery fully prepared and maintained in accordance with the battery manufacturer's instructions or as defined in the design documentation.

Service Life. The maximum combined storage and installed life of an undischarged cell or battery. Service life cannot be greater than shelf life and will be stated by the equipment manufacturer. The end of service life is indicated by a "replace-by" or expiration date. Service life is equivalent to useful life.

Shelf Life. The maximum period at which an undischarged cell or battery stored under standard conditions retains 80 percent of rated ampere-hour capacity. The cell/battery manufacturer specifies shelf life.

System. A combination of components, parts, and elements, which are interconnected to perform one or more functions.

Superseded

PREVIOUSLY ISSUED NON-RECHARGEABLE LITHIUM BATTERY SPECIAL CONDITIONS FOR TRANSPORT AIRPLANES

For the purpose of this appendix, both a battery and battery system is referred to as a battery. A battery system consists of the battery and any protective, monitoring, and alerting circuitry or hardware inside or outside of the battery. It also includes vents (where necessary) and packaging. The Federal Aviation Administration (FAA) has issued several special conditions (SCs) for non-rechargeable lithium battery installations on transport category airplanes (and these SCs have been adopted by the DASA). These SCs are located in this appendix. Applicants, who propose using these SCs for their project, must submit a MCRI indicating their intentions to the DASA.

Definition of Key Terms

In this policy, the terms “must,” “should,” and “recommend” have specific meanings:

(a) The term “must” refers to a regulatory requirement that is mandatory for design approval. The functional impact of the term “must” is that the requirement has to be met to achieve design approval.

(b) The term “should” refers to instructions for a particular acceptable method of compliance (MOC). The functional impact of the term “should” is that all proposed alternative MOC are evaluated through the issue paper process.

(c) The term “recommendation” refers to a recommended practice that is optional. There is no functional impact of the term “recommend” because it is optional.

(d) “End Item” is used in this appendix and is defined in RTCA/DO-227A, Minimum Operational Performance Standards (MOPS) for Non-Rechargeable Lithium Batteries, appendix D.

Background

Recent events involving rechargeable and non-rechargeable lithium batteries prompted a broad evaluation of these energy storage technologies. In January 2013, two independent events involving rechargeable lithium-ion batteries revealed unanticipated failure effects. On July 12, 2013, an event involving a non-rechargeable lithium battery in an emergency locator transmitter installation demonstrated additional unanticipated failure effects. The FAA has been issuing SCs for certification projects involving the installations of non-rechargeable lithium batteries. At this time, all of the published SCs have been the same. These SCs are listed below.

In lieu of title 14, Code of Federal Regulations (14 CFR) 25.1353(b) (1) through (4) at amendment 25-123 or 25.1353(c) (1) through (4) at earlier amendments, each non-rechargeable lithium battery installation must:

(a) Be designed to maintain safe cell temperatures and pressures under all foreseeable operating conditions to prevent fire and explosion.

(b) Be designed to prevent the occurrence of self-sustaining, uncontrollable increases in temperature or pressure.

(c) Not emit explosive or toxic gases, either in normal operation or as a result of its failure, that may accumulate in hazardous quantities within the airplane.

(d) Meet the requirements of 25.863.

Superseded

(e) Not damage surrounding structure or adjacent systems, equipment, or electrical wiring from corrosive fluids or gases that may escape in such a way as to cause a major or more severe failure condition.

(f) Have provisions to prevent any hazardous effect on airplane structure or systems caused by the maximum amount of heat it can generate due to any failure of it or its individual cells.

(g) Have a failure sensing and warning system to alert the flightcrew if its failure affects safe operation of the airplane.

(h) Have a means for the flightcrew or maintenance personnel to determine the battery charge state if the battery's function is required for safe operation of the airplane.

Note: A battery system consists of the battery and any protective, monitoring, and alerting circuitry or hardware inside or outside of the battery. It also includes vents (where necessary) and packaging. For the purpose of these special conditions, a "battery" and "battery system" are referred to as a battery.

Superseded

GUIDANCE FOR INSTALLING NON-RECHARGEABLE LITHIUM BATTERIES ON TRANSPORT AIRPLANES

For the purpose of this appendix, both a battery and battery system is referred to as a battery. A battery system consists of the battery and any protective, monitoring, and alerting circuitry or hardware inside or outside of the battery. It also includes vents (where necessary) and packaging. The Federal Aviation Administration (FAA) has issued several special conditions (SCs) for non-rechargeable lithium battery installations on transport category airplanes (and these SCs have been adopted by the DASA). These SCs are provided in Appendix C of this Annex.

This appendix provides an acceptable method of compliance with the non-rechargeable lithium battery SCs in Appendix C of this Annex and related 14 CFR part 25 requirements. It also provides guidance related to the applicability statements in previously issued non-rechargeable lithium battery SCs.

D.1 Methods of Compliance with SCs

RTCA/DO-227A, Minimum Operational Performance Standards (MOPS) for Non-Rechargeable Lithium Batteries, sections 1 Purpose and Scope and 2 Equipment Performance Requirements and Test Procedures, provide design requirements and guidelines that are pertinent to designing safe batteries and to meeting part 25 installation requirements and these SCs. Consider each of these requirements and guidelines when designing cells and batteries.
Special Conditions 1 and 2 below are intended to ensure that the cells and battery are designed to eliminate the potential for uncontrollable failures. However, a certain number of failures will still occur due to various factors many of which are beyond the control of the designer. Therefore, these SCs as a whole are intended to protect the airplane and its occupants even when a failure occurs. These SCs are independent of each other. Demonstrating compliance with one of these SCs does not constitute compliance with the other SCs. The methods of compliance are as follows:

D.1.1 Method of Compliance (MOC) for SC 1. Show that the individual cells meet the requirements in RTCA/DO-227A, section 2.2.1 Cell Functional and Safety Requirements. Use the test procedures in RTCA/DO-227A, section 2.4.1 Cell Test Procedures and Criteria and show that the associated evaluation criteria are met.

D.1.2 Method of Compliance for SC 2. Whereas, SC 1 requires that each individual cell within a non-rechargeable lithium battery be designed to maintain safe temperatures and pressures, SC 2 addresses these same issues but for the entire battery. Special Condition 2 requires that the battery be designed to prevent propagation of a thermal event, such as self-sustained, uncontrollable increases in temperature or pressure from one cell to adjacent cells. Show that the battery installation meets the requirements in RTCA/DO-227A, sections 2.2.2 Battery Functional and Safety Requirements and 2.2.3 End Item Functional and Safety Requirements. Use the test procedures in RTCA/DO-227A, sections 2.4.2 Battery Test Procedures and Criteria and 2.4.3 End Item Test Procedures and Criteria and show that the associated evaluation criteria are met. RTCA/DO-227A, section 2.2.2 states, “If a single-cell battery is identical to the cell being tested for qualification, then the battery tests in this section shall be conducted unless they are identical to the cell tests.” In these cases, where the battery tests are identical to the cell tests, show that the cell tests are met in lieu of the battery tests to support demonstrating compliance with SC 2.

D.1.3 Method of Compliance for SC 3 – 6. Use the worst case test data from the MOCs for SCs 1 and 2 to support demonstrating compliance with SCs 3 - 6. The DASA considers that the RTCA/DO-227A,

Superseded

section 2.4.3.2.2 End Item Thermal Runaway Containment Test usually provides these worst case data.

D.1.4 Method of Compliance for SC 3. RTCA/DO-227A, appendix A, section A.5 Battery Emission Hazard discusses potential gas emissions from batteries and their effects. An acceptable MOC with SC 3 includes using the tests required under SCs 1 and 2 to demonstrate that all emitted gases are contained or vented overboard (i.e., vented outside the airplane) through designed ports. Section D.2.1 System Safety Assessment of this policy statement provides guidance for conducting a system safety assessment for a design that vents these gases overboard. Special Condition 3 does allow explosive and toxic gases to be uncontained and not vented overboard, provided they do not accumulate in hazardous quantities within the airplane. Consider the gases emitted from not only the cells but also the battery materials (e.g., insulation separators) when demonstrating compliance by this means.

D.1.5 Method of Compliance for SC 4. The amendment level of 25.863 is determined by 14 CFR 21.17 or 21.101, as appropriate. The amendment level is not determined by the issuance or effective date of the special conditions. The Aviation Rulemaking Advisory Committee (ARAC) draft Advisory Circular (AC) 25.863-1, Flammable Fluid Fire Protection (Aviation Rulemaking Advisory Committee (ARAC) draft Advisory Circular (AC) 25.863-1 http://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/TAEpihT5-9231998.pdf4) gives acceptable guidance on 25.863. Section 25.863 is a "fail-safe" regulation that requires means to minimize the likelihood of a fire and the resultant hazards if fire does occur. When applying 25.863 to a battery installation, as explicitly required by SC 4, conduct a hazard assessment assuming that a battery failure ignites any resultant flammable fluids or gases, and provide provisions to address the associated hazards. This may result in the need to provide a battery enclosure that vents overboard. 25.1309(c) in accordance with FAA Policy Statement PS-ANM-100-00-113-1034, dated January 4, 2001.

D.1.6 Method of Compliance for SC 5. Show that when fluid escapes the battery, it is not corrosive or it is managed in a way (e.g., contained, isolated, or vented overboard) to protect the surrounding structure and adjacent systems, equipment and electrical wiring.

D.1.7 Method of Compliance for SC 6. Show that the effects of the heat, and any related effects, from the tests performed under SCs 1 and 2 do not constitute a hazard to the structure or systems of the airplane. If the effects of the heat or any related effects constitute a hazard to the structure or systems of the airplane, design mitigation at the airplane level may be applied to bring the design into compliance with this SC.

D.1.8 Method of Compliance for SC 7. Pursuant to 25.1309(c), SC 7 requires flightcrew alerting when the failure of a battery installation, in itself or in relation to a system that performs an airplane-level function, could result in "unsafe system operating conditions" as stated in 25.1309(c). The alert must meet the applicable paragraphs of 25.1322. The applicant should refer to the current AC 25.1309-1A System Design and Analysis for guidance. The ARAC recommended draft AC 25.1309-Arsenal, System Design and Analysis, dated June 10, 2002, also provides guidance that may be applied to a project if the applicant receives an equivalent level of safety finding to 25.1301 and 25.1309(c) in accordance with FAA Policy Statement PS-ANM-100-00-113-1034, dated January 4, 2001.

D.1.9 Method of Compliance for SC 8. The following are examples of "means" by which the flightcrew or maintenance personnel to determine the battery charge state:

(a) A manually activated system (e.g., push button) that displays the available charge of each battery unit.

(b) An automatic system that records the available charge of each battery unit on an appropriate interval and makes it available to maintenance personnel before the next flight.

(c) Physical access that allows a maintenance person to measure the battery charge state.

Superseded

The above “means” are acceptable only when the Instructions for Continued Airworthiness (ICA) include a requirement for a person to check the battery charge state within an interval that will ensure sufficient charge for the entire flight and to replace the battery when the charge is not sufficient.

D.1.10 Method of Compliance for Very Small, Button/Coin Non-Rechargeable Lithium Batteries. An acceptable MOC with SCs 1 through 6 for button/coin non-rechargeable lithium battery installations that have less than 2 watt-hours of energy is showing these batteries meet Underwriters Laboratories (UL) 1642.

D.2 Part 25 Compliance

Non-rechargeable lithium battery installations must comply with these SCs and all applicable part 25 and part 26 requirements. The following provides methods of compliance and other information for pertinent part 25 requirements:

D.2.1 System Safety Assessment. Pursuant to 25.1301, 25.1309 and 25.1709, and these SCs requirements for specific functionalities and capabilities, address certain critical failure modes of non-rechargeable lithium batteries and their installations, the applicant must also meet the requirements of 25.1301, 25.1309 and 25.1709, when applicable, in addition to these SCs. To date, in-service experience has shown that non-rechargeable lithium battery thermal/pressure runaway conditions are not extremely improbable. Assume such failures could occur sometime during the life of the battery installation when demonstrating compliance with 25.1309 except for button/coin batteries that have less than 2 watt-hours of energy and meet UL 1642. For button/coin batteries that have less than 2 watt-hours of energy and meet UL 1642, use the data from UL 1642 to support demonstrating compliance with 25.1309. For other non-rechargeable lithium batteries, use the worst case test data from section D.1.1 Method of Compliance for SC 1 and section D.1.2 Method of Compliance for SC 2 to support demonstrating compliance with 25.1309. As part of showing compliance with 25.1309, the applicant is to demonstrate that particular risks, as identified in SAE ARP 4761, Guidelines and Methods for Conducting Safety Assessment Process on Civil Airborne Systems and Equipment, such as an uncontained rotor burst, tire debris, fire, lightning or bird strike, will not compromise continued safe flight and landing. The applicant is to consider the effects of particular risks both internal and external to non-rechargeable lithium battery installations. For example, the applicant is to consider the effects of particular risks on any containment and venting provisions for a non-rechargeable lithium battery.

Application of 25.1309(b) and (c) may result in required periodic maintenance actions or flightcrew alerting features. For example, an over-temperature warning system may be necessary to allow the flightcrew to manage potentially unsafe system operating conditions. Provide rationale for alerting requirements (or for why an alert is not needed) in the system safety assessment of the battery installations to demonstrate compliance with 25.1309(c). Such alerts, when provided, must meet 25.1322. Refer to AC 25.1309-1A, AC 25.1322-1 Flight Crew Alerting, AC 25.1581-1 Airplane Flight Manual, and AC 25.1701-1 Certification of Electrical Wiring Interconnection Systems on Transport Category Airplanes for further guidance.

Venting toxic and explosive gases from a non-rechargeable lithium battery failure through designed ports that lead outside of the airplane is a MOC with SC 3 as discussed in section D.1.4 Method of Compliance for SC 3. Pursuant to 25.1309, consider the hazards of exposure of these gases to ground personnel, air conditioning in-take and engine in-takes.

D.2.2 Section 25.1353 Electrical Equipment and Installations. Pursuant to 25.1353(b) and (c), each SC states that it applies to all non-rechargeable lithium battery installations in lieu of 25.1353(b)(1) through (4) at amendment 25-123 or 25.1353(c)(1) through (4) at earlier amendments. This

Superseded

statement does not relieve an applicant from demonstrating compliance to the other paragraphs of 25.1353.

D.2.3 Section 25.1529 Instruction for Continued Airworthiness (ICA). Pursuant to 25.1529, include in the ICA the following to show compliance with the regulation:

(a) Maintenance requirements to replace each non-rechargeable lithium battery within an interval that will ensure there is sufficient charge to power equipment.

(b) A requirement to only replace non-rechargeable lithium batteries with batteries from the same manufacturer with the same part number or to obtain a new approval for installing a different battery. Refer to the battery original equipment manufacturer maintenance manual.

(c) Procedures to ensure that each non-rechargeable lithium battery has not:

1. Experienced degraded charge retention ability or other damage during storage.

2. Been damaged from environmental or physical impacts such as mechanical shock, vibration, heat and possible abuses encountered during storage, transportation prior to their installation or maintenance activities on or around them.

(d) Precautions to prevent mishandling of replacement non-rechargeable lithium batteries prior to their installation which could result in short-circuit or other unintentional damage.

Acceptable procedures for item 3.b. above may include a quality control process for packaging, storing, maintaining and transporting non-rechargeable lithium batteries, including reporting of dropped or damaged batteries.

D.2.4 Section 25.1729 Electrical Wiring Interconnection Systems (EWISs) ICA. Pursuant to 25.1729, Electrical Wiring Interconnection Systems (EWISs) maintenance and inspection tasks required are to ensure that EWIS components associated with non-rechargeable lithium batteries are sufficient to prevent degradation of any EWIS component that is designed and installed to support compliance with these SCs.

D.2.5 Sections 25.903(d) and 25.1309 Uncontained Engine or Auxiliary Power Unit (APU) Rotor Failures. Pursuant to 25.1309, the applicant is expected to demonstrate that a foreseeable event originating from outside of a non-rechargeable lithium battery, such as an uncontained rotor burst, will not compromise continued safe flight and landing. An applicant may propose fail-safe design features that encase and safely vent the hazardous by-products of a failure originated from within the battery to show compliance with the non-rechargeable lithium battery SCs. However, a rotor failure could defeat such safety features depending on the location of the battery installation. If an applicant proposes to install a non-rechargeable lithium battery in a rotor burst zone, the applicant must ensure the means of compliance to the SCs remain effective considering potential rotor failures that could damage the battery.

Regarding compliance to 25.903(d)(1) turbine engine rotor failures, AC 20-128A Design Considerations for Minimizing Hazards caused by Uncontained Turbine Engine and Auxiliary Power Unit Rotor Failure provides guidance on fragmentation characteristics and the boundaries of the locations in which applicants are expected to evaluate the effects of impact damage following an uncontained rotor burst. If an applicant proposes to install a non-rechargeable lithium battery in a rotor burst zone, the applicant must assess the rotor burst induced damage to the battery to show compliance with 25.903(d)(1) in conjunction with showing compliance with the non-rechargeable lithium battery SCs. In this case, provide a proposed method of compliance to the DASA. Alternatively, locate the battery outside of the rotor burst zone.

Superseded

D.3 Special Condition Applicability Exclusion Criteria

As explained in Appendix C, the FAA determined from non-rechargeable lithium battery incidences that part 25 does not contain adequate safety standards for installing these batteries on transport category airplanes. The FAA addressed this issue on new certification projects for transport category airplanes by requiring changes involving non-rechargeable lithium batteries to comply with special conditions. However, the FAA previously approved many non-rechargeable lithium battery installations that were not shown to comply with special conditions. Therefore, to improve the safety of follow-on airplanes that are delivered with these installations, the FAA included a paragraph in the applicability section of non-rechargeable lithium battery special conditions similar to the following:

These special conditions are not applicable to changes to previously certified non-rechargeable lithium battery installations where the only change is either cosmetic or to relocate the installation to improve the safety of the airplane and occupants. Previously certified non-rechargeable lithium battery installations, as used in this paragraph, are those installations approved for certification projects applied for on or before the effective date of these special conditions. A cosmetic change is a change in appearance only, and does not change any function or safety characteristic of the battery installation. These special conditions are also not applicable to unchanged, previously certified non-rechargeable lithium battery installations that are affected by a change in a manner that improves the safety of its installation. The FAA determined that these exclusions are in the public interest because the need to meet all of the special conditions might otherwise deter these design changes that improve safety.

This statement is intended to allow the Authority or type certificate holders to identify approved lithium battery installations that are a fire safety concern, which are not necessarily unsafe such that the Authority would issue an airworthiness directive, and implement a design change that improves the safety of it on follow-on airplane deliveries without having to show compliance with the special conditions. The FAA considered that requiring new substantiation data for meeting the special conditions may prevent type certificate holders from implementing these improvements.

The special condition applicability exclusion, which relates to improving the safety of previously approved installations, only applies to the below conditions and each condition must be met:

(a) A change to a baseline airplane type certificated on or before the effective date of the special condition. That is, the follow-on airplane change must be compared to a single, baseline airplane (i.e., a distinct serial number airplane). Other changes between the follow-on airplane and baseline airplane may exist, but all of those changes must be approved as part of the follow-on airplane changes. Otherwise, the proposed baseline airplane is not actually the baseline airplane.

(b) Previously approved non-rechargeable lithium battery installations on baseline airplanes where a fire safety concern, which may not be considered unsafe such that the Authority would issue an airworthiness directive, is identified. This exclusion does not cover a situation where a battery is moved to an arguably better location, but either location is considered fine in terms of fire safety.

(c) A change that provides a substantial, fire safety improvement.

(d) For minor software changes to avionics devices that contain non-rechargeable lithium batteries, where the software functional changes have no effect on and are not affected by an existing installed battery. Applicants should demonstrate that the change has no effect on the battery or the associated special conditions.

Superseded

Applicants, who propose to use this special condition applicability exclusion statement, should provide the DASA information to show how their proposal meets each of the above conditions. This includes providing a detailed assessment of the battery installation on the baseline airplane and the improvement due to the proposed change considering a battery thermal runaway failure for both installations. The assessment should:

(a) Consider the battery thermal runaway effects of heat, explosive energy, projecting debris and toxic gases.

(b) Address the proximity of the battery to occupants, critical systems and equipment, structure, and any other installations that could be a hazard if exposed to a battery thermal runaway (e.g., oxygen bottles/lines, fuel lines).

Superseded

SAFETY OBJECTIVES AND MOC FOR INSTALLATION OF NON-RECHARGEABLE LITHIUM BATTERIES ON ROTORCRAFT

This appendix establishes an approach to show compliance for non-rechargeable lithium batteries and their installation to the safety objectives listed in this appendix. It is also intended to ensure, as required by 27/29.601 and 27/29.1309, that the installation does not represent a hazard to the rotorcraft and its occupants.

Regulatory Basis from parts 27 and 29

Pursuant to 27/29.601, the design must not have features or details that experience has shown to be hazardous or unreliable.

Pursuant to 27/29.863, provide a means of minimizing the probability of ignition of flammable fluids or vapours that might leak from flammable liquid sources, and the resultant hazards in the event of ignition.

Pursuant to 27/29.1301, ensure each system is appropriate for its intended function, and is labelled and installed according to its limitations and function.

Pursuant to 29.1309, ensure all systems perform their intended function under any foreseeable operating conditions, systems must be designed to prevent hazards to the rotorcraft in the event of a probable malfunction or failure.

Pursuant to 27.1309, all systems must perform their intended function under any foreseeable operating conditions, systems must be designed to prevent hazards to a multiengine rotorcraft in the event of a probable malfunction or failure and minimize hazards to a single engine rotorcraft. Pursuant to 29/27.1353, storage batteries must be designed and installed to maintain safe cell temperatures and pressures that no explosive or toxic gases can accumulate in hazardous quantities, and that corrosive fluids or gases cannot damage surrounding structures or essential systems.

Pursuant to 27/29.1529, requires that Instructions for Airworthiness be prepared that are acceptable to the Authority.

Advisory Material

RTCA/DO-227A, Minimum Operations Performance Standards (MOPS) for Non-Rechargeable Lithium Batteries.

AC 29-2C, Certification of Transport Category Rotorcraft.

E.1 Safety Objectives (SO's)

Eight Safety Objectives are identified as critical for safe installation of non-rechargeable lithium batteries on rotorcrafts. Each non-rechargeable lithium battery installation must show compliance with the following Safety Objectives:

E.1.1 Safety Objective 1: The battery shall be designed to maintain safe cell temperatures and pressures under all foreseeable operating conditions to prevent fire and explosion.

E.1.2 Safety Objective 2: The battery shall be to prevent the occurrence of self-sustaining, uncontrollable increases in temperature or pressure.

Superseded

E.1.3 Safety Objective 3: The battery shall not emit explosive or toxic gases, either in normal operation or as a result of its failure, that may accumulate in hazardous quantities within the rotorcraft.

E.1.4 Safety Objective 4: The battery must meet the flammable fluid fire protection requirements of 29.863.

E.1.5 Safety Objective 5: The battery and installation must be designed to prevent corrosive fluids or gases that may escape from damaging surrounding structure or adjacent systems, equipment, or electrical wiring.

E.1.6 Safety Objective 6: The battery and installation must be designed to prevent any hazardous effect on rotorcraft structure or systems caused by the maximum amount of heat generated from any battery or individual cell failure.

E.1.7 Safety Objective 7: The battery and installation must have a failure sensing and warning system to alert the flight crew if a failure affects safe operation of the rotorcraft.

E.1.8 Safety Objective 8: The battery and installation must provide a means for the flight crew to determine the battery charge state (for required battery systems).

Note: A battery system consists of individual battery cell(s), a battery assembly, and any protective, monitoring and alerting circuitry or hardware inside or outside of the battery. It may also include vents (when necessary) and packaging. For the purpose of this guidance, a battery and battery system are referred to as a battery. A battery may also be an integral component of an end item assembly. The battery supplies energy to the end item. A battery may also be an end item.

E.2 Method of Compliance (MOC)

The following MOC have been accepted to ensure that the battery meets Safety Objectives 1 through 8 discussed in the paragraphs above. Some failures may still occur due to various factors beyond the control of the battery and battery system OEM; these MOCs are also intended to address the occurrence of these unexpected failures. RTCA/DO-227A provides a MOC acceptable to the DASA for installation of non-rechargeable lithium batteries on rotorcraft. General design and construction requirements necessary to reliably and consistently produce lithium batteries appropriate for installation into the expected rotorcraft environment are found in paragraph 2.1, General Requirements and Design Guidelines. Paragraph 2.2, Functional and Safety Requirements, defines the minimum functional requirements for battery cells, batteries, and end items. Each subparagraph in paragraph 2.2 references a specific test procedure found in paragraph 2.4. Test procedures and evaluation criteria specifically for cells, batteries and end items are outlined in paragraph 2.4 corresponding to each of the functional and safety requirements. Test conditions are defined in paragraph 2.3.

E.2.1 MOC for Safety Objective 1. Show that the individual cells meet the requirements in RTCA/DO-227A, section 2.2.1 by successfully performing the test procedures in section 2.4.1 and judging the test results against the associated evaluation criteria.

E.2.2 MOC for Safety Objective 2. Safety Objective 1 requires that each individual cell within a non-rechargeable lithium battery be designed to maintain safe temperatures and pressures. Safety Objective 2 requires that the battery and end item installation be designed to prevent propagation of a thermal event, such as self-sustained, uncontrollable increases in temperature or pressure from one cell to adjacent cells. Show that the battery installation meets the requirements in RTCA/DO-227A, sections 2.2.2 Battery Functional and Safety Requirements and 2.2.3 End Item Functional and Safety

Superseded

Requirements. Successfully perform the test procedures in sections 2.4.2 and 2.4.3. Judge the test results against the associated evaluation criteria for successful showing.

E.2.3 Safety Objectives 3 through 6. Use the worst case test data from the MOCs for Safety Objectives 1 and 2 to support demonstrating compliance with SO 3 through 6. The DASA considers that the RTCA/DO-227A, section 2.4.3.2.2 End Item Thermal Runaway Containment Test usually provides these worst case data.

1. *E.2.3.1 MOC for Safety Objective 3.* RTCA/DO-227A, appendix A, section A.5 discusses potential gas emissions from batteries and their effects. An acceptable means of complying with Safety Objective 3 includes using the tests required under Safety Objectives 1 and 2 to demonstrate that all emitted gases are contained or vented overboard (i.e., vented outside the rotorcraft) through designed ports. Pursuant to 29.1309, when the design has ports to vent gases overboard, show that there are means to protect ground personnel from exposure to these gases and to prevent re-ingestion, for example through engine in-take or air conditioning in-take. Safety Objective 3 allows explosive and toxic gases to be uncontained and not vented overboard if they do not accumulate in hazardous quantities within the rotorcraft. Consider the gases emitted from not only the cells but also the battery materials (e.g., insulation separators) when demonstrating compliance by this means.

1. *E.2.3.2 MOC for Safety Objective 4.* The amendment level of 25.863 is determined by 14 CFR 21.17 or 21.101, as appropriate. The amendment level is not determined by the issuance or effective date of the special conditions. The Aviation Rulemaking Advisory Committee (ARAC) draft Advisory Circular (AC) 25.863-1, Flammable Fluid Fire Protection gives acceptable guidance on 25.863.

1. *E.2.3.3 MOC for Safety Objective 5.* Show that if fluid escapes the battery, it is not corrosive or it is managed in a way (e.g. contained, isolated, or vented overboard) to protect the surrounding structure and adjacent systems, equipment and electrical wiring.

1. *E.2.3.4 MOC for Safety Objective 6.* Show that the effects of the heat, and any related effects, from the tests performed under Safety Objectives 1 and 2 do not constitute a hazard to the structure or systems of the rotorcraft. If the effects of the heat or any related effects constitute a hazard to the structure or systems of the rotorcraft, design mitigation at the aircraft level may be applied to bring the design into compliance with Safety Objective 6.

E.2.4 MOC for Safety Objective 7. Pursuant to 29.1322, Safety Objective 7 requires flight crew alerting for unsafe operating conditions. Flight crew alerting is required when a battery installation failure affects continued safe flight and landing. The effect of the battery failure on other systems that perform functions required for safe flight and landing must also be considered. The alert must meet the applicable paragraphs of 29.1322. The applicant should refer to the current AC 29-2C for guidance on 29.1322.

E.2.5 MOC for Safety Objective 8. The following are examples of “means” for flight crew or maintenance personnel to determine the battery charge state:

(a) A manually activated system (e.g., push button) that displays the available charge of each battery unit.

(b) An automatic system that records the available charge of each battery unit on an appropriate interval and makes it available to maintenance personnel before the next flight.

Superseded

(c) Physical access that allows a maintenance person to measure the battery charge state.

The above "means" are acceptable only when the Instructions for Continued Airworthiness (ICA) include a requirement for a person to check the battery charge state within an interval that will ensure sufficient charge for the entire flight considering the worst case scenario, and to replace the battery when the charge is not sufficient. After completing all the required test and validation based on the MOC for each safety objectives, provide a summary of all the evaluation criteria and reportable items listed in each test. Compliance to one safety objective does not constitute compliance to any other safety objectives.

E.3 Part 27 and 29 Compliance

Pursuant to part 29, non-rechargeable lithium battery installations should satisfy each of the MOCs identified in this document. The following provides means of compliance and other information on other important part 29 requirements.

E.3.1 System Safety Assessment. Pursuant to 27, 29.1301 and .1309, hazard conditions require specific functionalities and capabilities, and address certain critical failure modes of non-rechargeable lithium batteries and their installations, to date however, in-service experience has shown that non-rechargeable lithium battery thermal/pressure runaway conditions are not extremely improbable. Assuming such failures will occur sometime during the life of the battery installation when demonstrating compliance, periodic maintenance actions or flight crew alerting features such as, an overtemperature warning system may be necessary to allow the flight crew to manage potentially unsafe system operating conditions. Provide rationale for alerting requirements (or for why an alert is not needed) in the system safety assessment of the battery installations to demonstrate compliance with 27.1309 and 29.1309. Such alerts, when provided, must meet 27.1322 and 29.1322.

E.3.2. ICA. The ICA should include the following provisions to comply with 27.1529 and 29.1529:

(a) Maintenance requirements to replace each non-rechargeable lithium battery within an interval that will ensure there is sufficient charge to power equipment.

(b) A requirement to only replace non-rechargeable lithium batteries with batteries from the same manufacturer with the same part number or to obtain a new approval for installing a different battery. Refer to the battery Original Equipment Manufacturer's maintenance manual.

(c) Procedures to ensure that each non-rechargeable lithium battery has not:

1. Experienced degraded charge retention ability or other damage during storage.

2. Been damaged from environmental or physical impacts such as mechanical shock, vibration, heat and possible abuses encountered during storage, transportation prior to their installation or maintenance activities on or around them.

3. Precautions to prevent mishandling of replacement non-rechargeable lithium batteries prior to their installation which could result in short-circuit or other unintentional damage.

Note: Acceptable procedures for paragraph E.3.2-2 above may include a quality control process for packaging, storing, maintaining and transporting non-rechargeable lithium batteries, including reporting of dropped or damaged batteries.

E.3.3 Uncontained Engine or APU Rotor Failures. Sections 27.903(b), 29.903(d) and 27/29.1309. In general, as part of showing compliance with 27/29.1309, the DASA expects the applicant to

Superseded

demonstrate that a foreseeable event originating from outside of a non-rechargeable lithium battery, such as an uncontained rotor burst, will not compromise continued safe flight and landing. While you may use failsafe design features that encase and safely vent the hazardous by-products of a failure originated from within the battery to show compliance with the non-rechargeable lithium battery Safety Objectives, depending on the location of the battery installation, a rotor failure could defeat such safety features. If you propose to install a non-rechargeable lithium battery in a rotor burst zone, you must ensure the means of compliance to the SO's remains effective considering potential rotor failures that could damage the battery. Regarding compliance to 29.903(d)(1) turbine engine rotor failures, AC 20-128A provides guidance on fragmentation characteristics and the boundaries of the locations in which applicants are expected to evaluate the effects of impact damage following an uncontained rotor burst. If you propose to install a non-rechargeable lithium battery in a rotor burst zone, you must assess the rotor burst induced damage to the battery in your plan for showing compliance with 29.903(d)(1) in conjunction with complying with the non-rechargeable lithium battery SO's. Clearly state your method of compliance in your response to this issue paper. Alternatively, the battery is to be located outside of the rotor burst zone.

Superseded

CERTIFICATION CONSIDERATIONS OF NON-RECHARGEABLE LITHIUM BATTERIES ON SMALL AIRPLANES

F.1 This appendix provides guidance regarding the risk based certification considerations for the installation of non-rechargeable lithium batteries, or equipment that uses non-rechargeable lithium batteries on Title 14 of the Code of Federal Regulations (14 CFR) part 23 airplanes.

F.2 The regulations applicable to the subject include 23.2510 and 23.2525 amendment 23-64, or 23.1309 and 23.1353 with an earlier amendment level.

F.3 Section 23.1309 requires installed equipment perform its intended function and that it is designed to mitigate the hazard severity accordingly.

F.4 Section 23.1353 requires that storage batteries be designed and installed to maintain safe cell temperatures and pressures that no explosive or toxic gases can accumulate in hazardous quantities, and that corrosive fluids or gases cannot damage surrounding structures or essential systems.

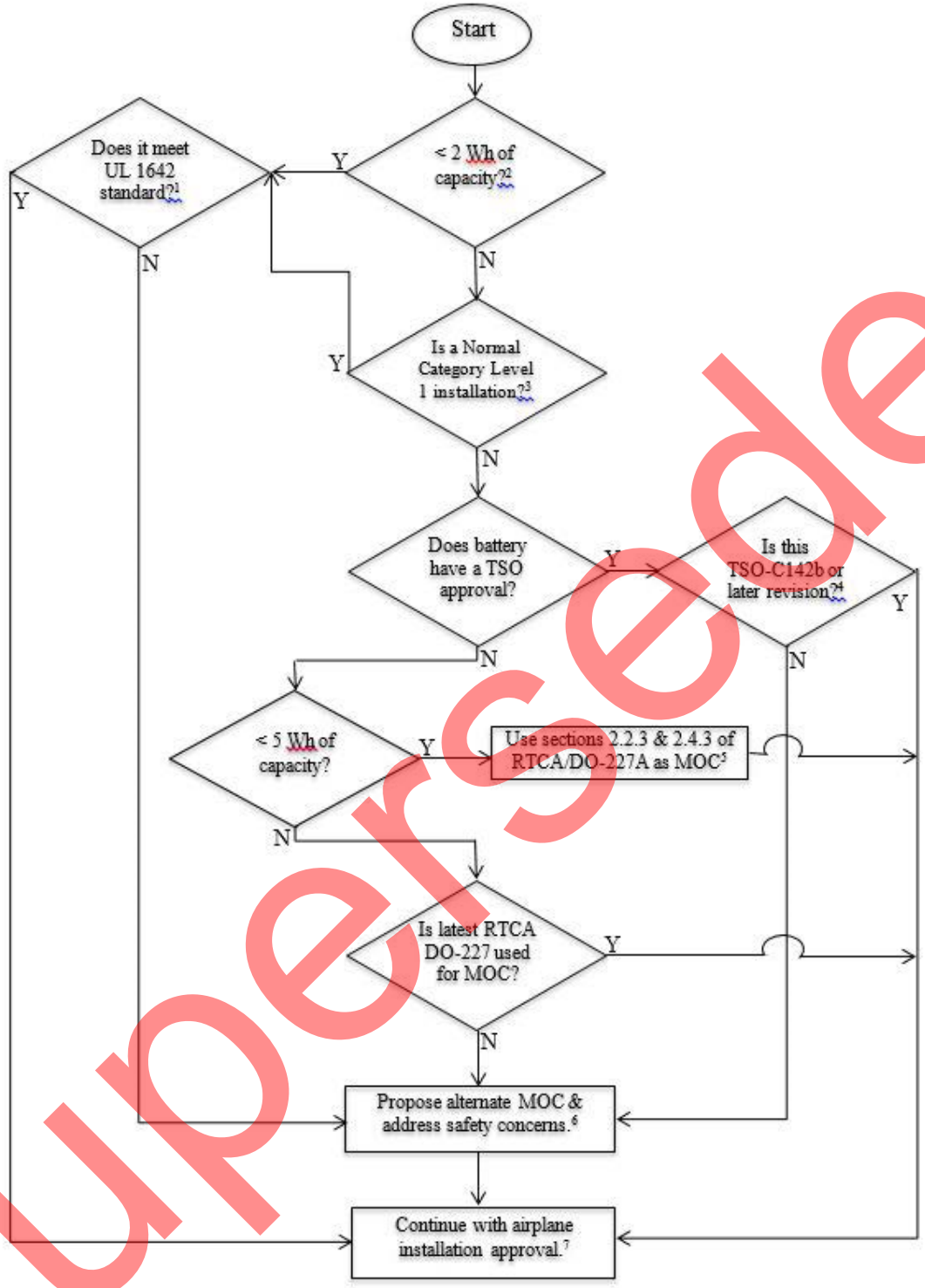
F.5 Section 23.2510 requires the probability and failure conditions of installed system or equipment remain an acceptable inverse relationship.

F.6 Section 23.2525 requires the power supply is adequate for intended operations that a single failure cannot stop power supply to essential loads for safe flight and landing, and has enough power storage capacity of duration to continue safe flight and landing.

F.7 The following depiction, figure 1, identifies applicable evaluations for installing equipment using non-rechargeable lithium batteries in part 23 airplanes.

Superseded

Figure 1. Non-Rechargeable Lithium Battery Certification Considerations



Superseded

Footnotes:

(a) Other than meeting the UL 1642 Standard, the appropriate regulatory authority that governs Hazardous Materials Transportation will regulate the carriage of uninstalled lithium batteries. For example, the UN regulations (e.g., UN 38.3, etc.) established guidance for safe transportation of lithium batteries.

(b) A Watt-hour (Wh) is defined as the rated capacity (in ampere-hours, Ah) times the nominal battery voltage. Evaluate the energy of the entire battery capacity for 2 Wh threshold.

(c) Section 23.2005(b) (1), amendment 23-64, defines a Normal Category Level 1 airplane. Certification basis with earlier amendments should use a Class I airplane, as defined in AC 23.1309-1E for this evaluation.

(d) The following is applicable to this footnote:

1. New installations with TSO-C142a approved articles should present data (e.g., test reports, quantitative and qualitative analysis, etc.) to show that there are no performance gaps in meeting TSO-C142b requirements. One example is substantiation of thermal runaway containment.

2. TSO-C142b-7 marking (i.e., marking requirements of "-7" described in paragraph 4.b of TSO-C142b) is an acceptable means of compliance for installation.

(e) The following items are applicable to this footnote:

1. Battery (or cell) must meet at a minimum UL1642 and UN 38.3 requirements. RTCA document, DO-227A, section 2.2.3 and 2.4.3 can be used as a MOC for the end item that the battery (or cell) provides power to.

2. If RTCA document, DO-227A, sections 2.2.3 and 2.4.3 are not used as a MOC, then the applicant must propose alternate methods to show compliance.

(f) The following items are applicable to this footnote:

1. New installations that use earlier version of RTCA/DO-227 as a MOC must perform adequate analysis and present additional data to meet the latest standards.

2. Coordinate with the small airplane standards branch for proposed alternate MOC, or any analysis used to justify deviations from latest DO-227 required tests.

3. Identified safety concerns must be addressed. Examples are risk assessment and mitigation of internal failures, overheat conditions, flammability, and gas emission.

(g) Continue the certification process. For example, 23.2510 (or 23.1309) compliance includes System Safety Assessment (SSA) process. Location related hazards (e.g. designated fire zones etc.), with respect to where an equipment is to be installed, should be addressed by SSA zonal safety analysis (ZSA), particular risk analysis (PRA), and failure modes and effects analysis (FMEA).

Superseded

ENVIRONMENTAL CONTROL SYSTEMS

INTRODUCTION

9.1 The Environmental Control System (ECS) provides temperature, humidity, ventilation and pressure control to passenger/cargo areas, aircraft systems and equipment. The system must be able to provide this control under any possible role, configuration and environment in which the platform will operate. ECS air may be derived from internal sources (engine or auxiliary power unit), external sources (ram air or air-conditioning cart) or an ECS dedicated compressor. Heat generated by aircraft equipment and occupants is usually dispersed external to the aircraft and needs to be controlled to meet safety and mission requirements. ECS functions and sub-systems may include, but are not limited to: pressurisation, heating, cooling, ventilation, moisture control, pressure and anti-G suit control, defogging, defrosting, anti-icing, rain removal, windshield washing, and electronic and electrical thermal management.

9.2 While compliance with the Authority recognised civil and military Airworthiness Codes described in Section 1 of this manual usually satisfies aircraft ECS safety objectives, the Codes may not account for ECS loads associated with military loads and mission systems. Further, Defence experience with ECS has identified that simple application of the Codes may not adequately account for the Australian operating environment, particularly where ground operations in harsh environmental conditions are expected. Consequently, the Authority prescribes airworthiness design requirements for Defence aircraft ECS to supplement these Airworthiness Codes and support the provision of adequate ECS capability for Defence aircraft operations.

Scope

9.3 This Chapter presents the Authority prescribed airworthiness design requirements for Defence aircraft ECS. Importantly, the airworthiness design requirements in this chapter are not suitable for application in isolation from an Airworthiness Code. The Authority's requirements for the application of recognised Airworthiness Codes are defined in Section 1 of this manual.

ECS DESIGN REQUIREMENTS

9.4 **Design Requirement (Essential).** *Defence aircraft electronic equipment cooling capacity must be evaluated and verified to provide sufficient cooling for safety of flight systems, for both initial aircraft designs and design changes, or additional ECS capacity must be provided.*

9.5 The safety of aircraft designs may be compromised if the ECS is not capable of providing adequate cooling to electrical or electronic equipment. Additionally, changes to ECS ducting or flow paths may impact ECS cooling performance even though capacity remains the same. As part of initial aircraft design certification activities, or during design changes that either add thermal loads to existing ECS demands or change the ECS characteristics, the ECS capacity and performance must be evaluated to verify that it remains adequate for the required load conditions.

Superseded

9.6 **Design Requirement (Essential)**. *Where applicable, Defence aircraft environmental control systems must satisfy the requirements for anti-G suit systems prescribed in MIL-E-18927E(AS), Environmental Control Systems, Aircraft, General Requirements for.*

9.7 Authority recognised civil Airworthiness Codes do not prescribe requirements for anti-G suit supply systems. To support safe anti-G suit operation where a Defence aircraft is to be used in operations requiring anti-G protection, compliance with an appropriate military standard is required.

9.8 **Design Requirement (Recommended).** *Environmental control systems should be capable of maintaining the required temperature, pressure, humidity and ventilation control in the ground environmental conditions for the worst-case duration applicable to the Defence aircraft CRE, described in:*

(a) *MIL-HDBK-310, Global Climatic Data for Developing Military Products*

(b) *DEF(AUST) 5168, The Climatic and Environmental Conditions Affecting the Design of Military Materiel.*

9.9 Compliance with Authority recognised Airworthiness Codes usually satisfies design safety objectives for the purposes of maintaining occupant and aircraft safety during flight (eg pressure and temperature control of occupied spaces and thermal control of aircraft equipment). However, Defence experience in the past, particularly for aircraft that are based on a modified civil variant, has identified that compliance with these Codes may result in an ECS that does not satisfy either occupant or equipment environmental control needs when the aircraft is on the ground. Therefore, the applicable environmental conditions for ground operations should be defined and the ECS evaluated to verify that it can support the associated environmental control requirements, or to identify supplementary ECS capability (eg ground air conditioning systems) if required.

9.10 **Design Requirement (Recommended).** *Cooling for electronic equipment provided by Defence aircraft environmental control systems should allow for 50% greater load capacity than that required for the originally certified aircraft design.*

9.11 Military aircraft operational experience demonstrates that 50% growth capacity from the originally certified design is likely to be sufficient to accommodate future changes in avionics, especially on fighter, bomber and electronically intensive platforms. Additional ECS capacity may be provided through: ECS designs having an electronic heat dissipation load greater than the equipment heat load of the originally certified design; aircraft designs that permit fitment of a larger capacity ECS system; or a combination of these approaches.

ENVIRONMENTAL CONTROL SYSTEMS MANAGEMENT AND PLANNING

9.12 While not essential for the achievement of a safe aircraft design from an ECS perspective, Defence experience has demonstrated that formal ECS management and planning supports the achievement of an appropriate level of ECS capacity and performance. Consequently, the Authority recommends the use of the following two ECS planning documents:

(a) ECS Operating Modes Document (ECSOMD), and

(b) ECS Analysis and Integration Plan (ECSAIP).

9.13 ECS air for Defence aircraft is a resource and, therefore, should be managed in a similar manner to other platform resources such as electrical loads and weight and balance. Critical modes of operation will be present in Defence aircraft ECS, in which the demands on ECS resources may be

Superseded

elevated or where normal ECS resources may be unavailable. These critical modes of operation should be identified during initial aircraft design to establish the required ECS capability, to limit the potential for ECS resources to be compromised throughout the Defence aircraft's service life, and to provide a basis for evaluating the impact of design changes on Defence aircraft ECS.

9.14 One approach to documenting the identification and analysis of ECS modes is an ECS Operating Modes Document (ECSOMD). An ECSOMD should be raised for each defence aircraft acquisition. The SPO responsible for managing the Defence aircraft, should maintain the ECSOMD throughout the aircraft's service life, and update the document for each modification that has an impact on available ECS resources.

ECS Analysis and Integration Plan (ECSAIP)

9.15 Additional oversight of ECS resources during design changes may be required if the ECS:

(a) has an uncertain or undefined spare and/or utilised capacity,

(b) may impose limitations on aircraft operations, or

(c) will be nearing capacity in the immediate future through concurrent or future defined design changes.

9.16 One method of applying this additional oversight is through the use an ECS Analysis and Integration Plan (ECSAIP). An ECSAIP should be developed for all design changes having the potential to significantly impact ECS capabilities. The ECSAIP should build on the ECSOMD, demonstrate that ECS requirements have been adequately identified, and provide a vehicle for ongoing ECS management through the aircraft life of type.

RELATED INFORMATION

9.17 For additional information relating to ECS integration issues, refer to Section 2 Chapter 9, Equipment Environmental Qualification.

ADDITIONAL ENVIRONMENTAL CONTROL SYSTEM DESIGN GUIDANCE

9.18 Further guidance on implementing the ECS design requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

AIR VEHICLE SUBSYSTEMS (MECHANICAL)

INTRODUCTION

10.1 Air vehicle subsystems (mechanical) include: landing, hydraulic power, fuel, aerial refuelling, mechanical, propeller and pneumatic systems, and so on. In Defence aircraft, these subsystems are usually designed to comply with an Authority recognised Airworthiness Code. However, with the increased prevalence of modifying civil-derivative aircraft for military use, there may be occasions where Defence's CRE is different to that which the aircraft was originally certified. Further, the design of some air vehicle subsystems (mechanical) may have an adverse impact on capability and interoperability if Defence's requirements are not considered during design development.

10.2 Nevertheless, Defence's CRE remains a primary consideration when selecting aircraft for Defence use. Any limitations associated with air vehicle subsystems will be comprehensively disclosed in the aircraft's design data and will inform decisions on whether the aircraft can adequately meet Defence's CRE. Consequently, compliance with any of the Authority recognised Airworthiness Codes, detailed in Section 1 Chapter 3 of this manual, is acceptable for air vehicle subsystems, provided that the acquisition organisation has confirmed that the airworthiness design requirements imposed by the Code are compatible with Defence's proposed CRE. Therefore, the DASDRM contains no additional Authority prescribed airworthiness design requirements for air vehicle subsystems.

10.3 For air vehicle subsystems modifications, JSSG-2009 US Department of Defense Joint Service Specification Guide – Air Vehicle Subsystems provides a wealth of information and related standards for guidance.

Capability design requirements

10.4 Defence aircraft designs may adversely impact continued availability for missions if the design does not provide adequate protection of the aircraft while parked. Some Authority recognised Airworthiness Codes may provide design requirements for aircraft picketing, however, these may not be adequate for Defence's role and operating environment.

10.5 While the Authority does not prescribe capability design requirements, the requirement for picketing of Defence aircraft to satisfy the expected ground conditions associated with Defence operations should be considered for aircraft acquisitions.

Interoperability design requirements

10.6 Defence aircraft air vehicle subsystems (mechanical) designs may adversely impact interoperability with other nations and/or continued operational availability, if they are not designed to facilitate interfaces with partner nation assets and support replenishment of fuels, oils and gases at deployed locations. In particular, civil-derivative aircraft may not be designed for interoperability. Section 1 Chapter 4 provides further guidance on interoperability requirements and the application of AFIC standards. The following requirement is not prescribed by the Authority, but should be

Superseded

considered for aircraft acquisitions and modifications to aircraft air vehicle subsystems (mechanical) systems where interoperability is a determining factor.

10.7 **Interoperability design requirement.** *Defence aircraft air vehicle subsystems (mechanical) designs should comply with the requirements defined in AFIC AIR STD ACS 4029 Aircraft Jacking Pads and Clearances, and AFIC AIR STD ACS 4058 Tyre Valve Couplings.*

Superseded

AIR VEHICLE SUBSYSTEMS (MECHANICAL)

AIR VEHICLE SUBSYSTEMS (MECHANICAL)

INTRODUCTION

10.1 Air vehicle subsystems (mechanical) include: landing, hydraulic power, fuel, aerial refuelling, mechanical, propeller and pneumatic systems, and so on. In Defence aircraft, these subsystems are usually designed to comply with an Authority recognised Airworthiness Code. However, with the increased prevalence of modifying civil-derivative aircraft for military use, there may be occasions where Defence's CRE is different to that which the aircraft was originally certified. Further, the design of some air vehicle subsystems (mechanical) may have an adverse impact on capability and interoperability if Defence's requirements are not considered during design development.

10.2 Nevertheless, Defence's CRE remains a primary consideration when selecting aircraft for Defence use. Any limitations associated with air vehicle subsystems will be comprehensively disclosed in the aircraft's design data and will inform decisions on whether the aircraft can adequately meet Defence's CRE. Consequently, compliance with any of the Authority recognised Airworthiness Codes, detailed in Section 1 Chapter 3 of this manual, is acceptable for air vehicle subsystems, provided that the acquisition organisation has confirmed that the airworthiness design requirements imposed by the Code are compatible with Defence's proposed CRE. Therefore, the DASDRM contains no additional Authority prescribed airworthiness design requirements for air vehicle subsystems.

10.3 For air vehicle subsystems modifications, JSSG-2009 US Department of Defense Joint Service Specification Guide – Air Vehicle Subsystems provides a wealth of information and related standards for guidance.

Capability design requirements

10.4 Defence aircraft designs may adversely impact continued availability for missions if the design does not provide adequate protection of the aircraft while parked. Some Authority recognised Airworthiness Codes may provide design requirements for aircraft picketing, however, these may not be adequate for Defence’s role and operating environment.

10.5 While the Authority does not prescribe capability design requirements, the requirement for picketing of Defence aircraft to satisfy the expected ground conditions associated with Defence operations should be considered for aircraft acquisitions.

Interoperability design requirements

10.6 Defence aircraft air vehicle subsystems (mechanical) designs may adversely impact interoperability with other nations and/or continued operational availability, if they are not designed to facilitate interfaces with partner nation assets and support replenishment of fuels, oils and gases at deployed locations. In particular, civil-derivative aircraft may not be designed for interoperability. Section 1 Chapter 4 provides further guidance on interoperability requirements and the application of AFIC standards. The following requirement is not prescribed by the Authority, but should be considered for aircraft acquisitions and modifications to aircraft air vehicle subsystems (mechanical) systems where interoperability is a determining factor.

Superseded

10.7 **Interoperability design requirement.** *Defence aircraft air vehicle subsystems (mechanical) designs should comply with the requirements defined in AFIC AIR STD ACS 4029 Aircraft Jacking Pads and Clearances, and AFIC AIR STD ACS 4058 Tyre Valve Couplings.*

Superseded

AIRCRAFT PERFORMANCE AND HANDLING

11.1 Aircraft performance and handling qualities are prescribed in airworthiness design requirements associated with aircraft flight controls and aerodynamics. While the Authority recognised Airworthiness Codes in Section 1 of this manual provide appropriate benchmark standards for Defence aircraft performance and handling qualities, there may be Defence unique role and operating environment considerations that are not adequately accommodated within these Codes. Consequently, Defence conducts comprehensive test programs to ensure that the Defence aircraft's performance, handling qualities and human factors are satisfactory for Defence's intended use.

11.2 The ADF Flight Test Organisations (DASR) retain specialist expertise in the identification of suitable requirements and standards for conducting aircraft performance, handling qualities and human factors assessments, to demonstrate that a Defence aircraft's handling characteristics are acceptable. POs/SPOs intending to acquire a Defence aircraft or implement a modification that could impact the extant handling qualities of a Defence aircraft, should engage with the applicable flight test organisation early in the certification process to obtain advice on appropriate performance and handling qualities design requirements, and suitable verification and test requirements to demonstrate compliance with these requirements.

Superseded

AIRCRAFT STRUCTURES

INTRODUCTION

12.1 This chapter provides airworthiness design requirements for Defence aircraft structures. This chapter is applicable to all certified aircraft types, including crewed fixed-wing and rotary-wing aircraft and certified-category Uncrewed Aircraft Systems (UAS).

12.2 Within the context of the DASR and this chapter, DASA defines the aircraft structure as the aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

12.3 The airworthiness codes recognised by DASA (refer Section 1 Chapter 3) provide an appropriate benchmark for establishing and maintaining an adequate level of safety for aircraft structures. However, DASA has identified the following three circumstances where recognised airworthiness codes may require supplementation:

(a) Recognised airworthiness codes not adequately covering the full scope of the proposed Defence Configuration, Role and Environment (CRE).

(b) The nature of proposed military operations typically dictates the need for more complex and proactive in-service structural integrity management (over and above that contained in some airworthiness codes) to ensure risk of failure remains within that inherent in the Type Certification Basis (TCB).

(c) Recognised airworthiness codes vary in terms of design requirements to address the threats associated with ageing of aircraft structures.

12.4 The requirements and guidance in this chapter are framed around these three circumstances. When developing a certification basis for a Military Type Certificate (MTC), Military Supplemental Type Certificate (MSTC) or Major Change, each applicant will need to assess the airworthiness design requirements inherent in the baseline Primary Certification Code (PCC) or standard and supplement or tailor, as required, using the essential requirements in this chapter. Applicants are highly encouraged to engage early with DASA as part of this process. Note that three likely scenarios exist for any given DASDRM requirement:

(a) Intent of DASDRM requirement is not met by any requirement in the underlying PCC / standard. In this case, the applicant would need to supplement the PCC / standard to add a new requirement.

(b) Intent of DASDRM requirement is partially met by an existing requirement in the underlying PCC / standard. In this case, the applicant may tailor the existing requirement so that it meets the full intent of the DASDRM requirement.

Superseded

(c) Intent of DASDRM requirement is fully met by an existing requirement in the PCC / standard. In this case, the applicant may propose to DASA that no supplementation or tailoring is required.

12.5 Separate to the DASA-prescribed airworthiness requirements under the DASR and DASDRM, it is Defence Policy that each Defence-registered aircraft type have an effective and efficient Aircraft Structural Integrity Program (ASIP) to:

(a) ensure, so far as is reasonably practicable, that degradation of integrity does not present risks to health and safety

(b) contribute to delivery and assurance of capability

(c) support cost-effective sustainment of capability.

12.6 Under Defence Policy , the Defence-preferred approach for ASIPs is alignment with MIL-STD-1530; a cradle-to-grave management framework for aircraft structural integrity that encompasses system requirements, design, verification and sustainment. Despite the fact that the ASIP remit and objectives are broader than safety, an effective ASIP is key to supporting the essential design requirements set out in this chapter[1].

12.7 The ASIP for each aircraft type should be documented in an Aircraft Structural Integrity Management Plan (ASIMP). ASIMPs are key documents that assist applicants and the regulated community by maintaining a record of relevant structural certification information and data, and demonstrate how the ASIP complies with the design requirements prescribed in this chapter and supports related DASR obligations[2].

STRUCTURAL TYPE CERTIFICATION

Type Certification Basis

12.8 **TCB Foundation**. As outlined above, the airworthiness codes recognised by DASA provide an appropriate benchmark for developing a TCB for the aircraft structure, subject to supplementation and / or tailoring to address the requirements provided in this chapter and any unique Defence CRE aspects (as discussed below).

12.9 For cases where Defence is acquiring an aircraft where the baseline design requirements are not a recognised airworthiness code, then applicants are recommended to use the European Military Airworthiness Certification Criteria (EMACC) Handbook, in conjunction with this chapter, to develop and propose for DASA approval a comprehensive set of airworthiness design requirements for structural certification. Applicants are highly encouraged to engage early with DASA if this is the case.

12.10 **TCB Supplementation and / or Tailoring.** The requirements related to aircraft structures within the airworthiness codes recognised by DASA often provide enough flexibility to cover the full scope of the proposed Defence CRE.

12.11 Notwithstanding, recognised airworthiness codes (especially civil codes) sometimes do require supplementation and / or tailoring for structural aspects related to military-specific CRE. Examples of areas where structural-related supplementation and / or tailoring has been required in the past include: aerial delivery loads; runway conditions; military-specific system structures and structural loads aspects of crash protection (in accordance with DASDRM Section 2 Chapter 6).

Superseded

12.12 For structural aspects, Defence's type certification approach almost exclusively relies on fully or partially leveraging prior NAA/MAA certification. Performing a CRE Assessment (CREA) is an essential part of this process to ensure the prior certification is applicable for the Defence CRE and the design is safe for the intended Defence use.

12.13 Aircraft Original Equipment Manufacturers (OEMs) design analysis and verification will be conducted using a configuration baseline and usage, loading and environment assumptions that will not always be representative of Defence's intended CRE. Furthermore, structural failure modes (in particular fatigue) can be highly sensitive to small changes in usage, loads and environment. Therefore, CREAs for aircraft structures usually require detailed and quantitative analysis. A particular focus of the CREA should be to quantitatively understand the impact of any CRE differences in the following areas:

(a) structural loads, including means of verification (e.g. flight and ground loads testing)

(b) design and fatigue / durability test spectra

(c) fatigue / durability test interpretation

(d) derivation of structural Airworthiness Limitations (AwLs) (i.e. structural and component life limits and structural inspection requirements)

Critical Parts and Airworthiness Limitations

12.14 The structural critical parts and associated AwLs, consistent with the TCB and the intended Defence CRE, must be identified during type certification (refer DASR AMC 21.A.41).

SUPPLEMENTARY STRUCTURAL DESIGN REQUIREMENTS

Critical Part Life Tracking / Individual Aircraft Tracking (IAT)

12.15 Variations in actual aircraft usage, environment and configuration can have a significant impact on when structural AwL actions (such as component retirement or inspections) need to be performed. This is especially the case for military operations where there is typically a higher variability in mission profiles compared to the civil sector.

12.16 The airworthiness codes recognised by DASA vary in terms of life tracking requirements. For example, civil airworthiness codes require AwLs to be identified[3], however, they do not sufficiently address requirements for tracking life accrual necessary in the military context. DASA therefore prescribes the following essential airworthiness design requirement.

12.17 **Design Requirement (Essential).** *The process for tracking life accrual of structural critical parts must be defined, commensurate with the complexity of the corresponding AwL requirements.*

12.18 AwLs include, and will define, the lifing metric(s) and any algorithm, equation, factor or other engineering data which must be used to calculate life accrual. The complexity of the process for tracking life accrual of structural critical parts will vary based on the complexity of the AwL definition.

Superseded

12.19 In many circumstances, the process for tracking life accrual of structural critical parts will require a dedicated system. In this context, the 'system' will typically comprise on-board and off-board hardware and software for data recording, processing and analysis, as well as the associated procedures[4]. The philosophy and design of the system must be based on the: certification basis; the aircraft type and role; the nature and definition for each AwL; anticipated operational variability (i.e. mission profile and mission mix variability) and uncertainty around ADF CRE. The following considerations should also be taken into account by applicants:

(a) The system must ensure that the accomplishment of AwL actions for individual aircraft or components takes into account the applicable parameters that contribute to life degradation.

(b) The system must have the ability to capture the necessary input data from all ground and flight operations (including development and / or acceptance testing) from the entry into service through to the retirement of each aircraft.

(c) The system must have the ability to identify and appropriately account for any missing or invalid data.

(d) The system must have the ability to track critical part life accrual per individual aircraft or per component as required. The level of component serialisation and tracking fidelity should ensure that individual critical parts do not exceed the underlying basis of AwLs.

(e) Requirements must ensure the system will be validated prior to fielding. Validation should test the entire system (on-board and off-board elements) in an end-to-end fashion (i.e. from raw / input data through to the AwL lifing metric outputs). Validation should ensure that the specified system will produce reliable, repeatable and suitably-conservative outputs so that AwLs are not exceeded in-service. Also within the scope of validation is calibration of all instrumentation (e.g. strain sensors and accelerometers), as required.

12.20 Compliance with this design requirement should be demonstrated through system validation / test report(s), and documentation that defines the process and, where relevant, the dedicated system. These should also be included, either directly or via reference, in the ASIMP.

12.21 Once in-service, the CAMO must maintain a record of the current status of service life-limited components (i.e. track life accrual against AwLs to meet continuing airworthiness obligations - refer DASR M.A.305(d)(4)). Compliance with the essential design requirement above will ensure that the requirements and process for tracking life accrual for structural AwLs are clearly defined up-front as part of type certification.

12.22 Note that the system for Critical Part Life Tracking / IAT may be partially or fully common with the Usage Monitoring system (refer to requirement below). Whilst the systems themselves may have commonality, the outcomes required are separate; therefore, separate sets of requirements must be defined in line with these two essential design requirements.

12.23 The following references also provide useful information on tracking of life accrual for aircraft structures:

(a) MIL-HDBK-516C Change Notice 2[5], section 5.7.3

(b) MIL-STD-1530D Change 1 (Aircraft Structural Integrity Program), sections 5.4.5 and 5.5.2

(c) JSSG-2006 (Joint Service Specification Guide, Aircraft Structures), sections A.3.15 / A.4.15[6].

Superseded

12.24 During design of an aircraft, OEMs demonstrate compliance with airworthiness requirements and develop critical part AwLs based on predicted operational profiles, material behaviour and environment. The OEM's design assumptions are typically based on the intended aircraft role(s) and cannot always specifically account for each operator's individual usage, environment and configuration throughout the entire life-cycle of an aircraft type. This is especially the case for military operations as roles, tactics and operating environments for a given aircraft type can vary significantly between operators and evolve over time. For military aircraft, monitoring accrual of lifing parameters against AwLs alone is insufficient to ensure that aircraft continue to operate within the risk level inherent in the TCB.

12.25 In order to ensure the continued integrity of the aircraft structure, systems and processes for Ongoing Monitoring and Periodic Assessment are required. The purpose of these two facets include:

(a) ongoing monitoring of usage and structural condition in order to collect the data required for, and to determine the periodicity of, assessments

(b) periodic assessment to ensure that the assumptions made during design and certification that could affect the integrity of structural critical parts remain valid for the Defence CRE.

12.26 The airworthiness codes recognised by DASA vary in terms of the requirements for Ongoing Monitoring and Periodic Assessment systems and processes. DASA therefore prescribes the three essential airworthiness design requirements outlined in this sub-section.

12.27 Once in-service, the MTCH must ensure the continued integrity of the aircraft structure through ongoing monitoring and periodic assessment (i.e. as a continued airworthiness obligation - refer DASR 21.A.44(c)). Compliance with the essential design requirements below will ensure that the relevant system and process requirements are clearly defined up-front as part of type certification.

Usage Monitoring (UM) System

12.28 **Design Requirement (Essential).** *A Usage Monitoring system, as necessary to capture the operational data required to ensure the continued integrity of structural critical parts, must be defined.*

12.29 The continued integrity of structural critical parts relies on ensuring the design assumptions (especially the design spectra) are continuously validated, or updated as required, based on actual operational data. Capturing the usage and loads information required to achieve this outcome requires a dedicated UM system. In this context, the 'system' will typically comprise on-board and off-board hardware and software for data recording, processing and analysis, as well as the associated procedures[7].

12.30 The philosophy and design of the system must be based on the aircraft type and role, certification basis and structural design philosophy, anticipated operational variability (i.e. mission profile and mission mix variability) and uncertainty around ADF CRE. The following considerations should also be taken into account by applicants when defining UM system:

(a) The system must have the ability to obtain the operational usage and measured or estimated loads data that will be required to update or confirm the design spectrum, identify when usage changes occur that warrant an update, and provide the data needed to establish or update a design / baseline spectrum.

Superseded

(b) The system must have the ability to capture all usage and operational factors which influence the integrity of structural critical parts. This should include, but is not limited to: all significant sources of repeated loads and other parameters that can influence fatigue cracking; operating location and environment parameters that can influence environmental degradation; and usage parameters that can influence flutter or other aeroelastic instability.

(c) The system must have the ability to measure or estimate structural critical parts loads with sufficient fidelity. The aircraft type and role (and therefore loads that need to be monitored), anticipated operational variability and uncertainty around ADF CRE will dictate the type of monitoring required. For some aircraft types, estimation of structural loads via analytical methods[8] may be sufficient; for others, direct loads measurement (i.e. using strain sensors) will be required. Examples of when a more-comprehensive system for direct loads measurement may be required include:

1. When there is a high degree of uncertainty with regards to the actual in-service loads that may be experienced by structural critical parts.

2. When analytical components of the UM system and / or system for tracking life accrual require ongoing validation with actual loads data.

3. Supporting a major modification or service life extension program.

(d) The system must have the ability to capture the necessary input data from all ground and flight operations (including development and / or acceptance testing) from the entry into service through to the retirement of each aircraft type.

(e) The system must have the ability to capture a representative quantity of valid operational data. An appropriate valid data capture rate should be defined for each aircraft type.

(f) Requirements must ensure the system will be validated prior to fielding. Validation should test the entire system (on-board and off-board elements) in an end-to-end fashion (i.e. from raw / input data through to processed data outputs). Validation should ensure that the system produces reliable, repeatable and accurate outputs. Also within the scope of validation is calibration of all instrumentation (e.g. strain sensors and accelerometers), as required.

12.31 Compliance with this design requirement should be demonstrated through system validation / test report(s) and system definition document(s). These should also be included, either directly or via reference, in the ASIMP.

12.32 Note that the UM system may be partially or fully common with the system for Critical Part Life Tracking / IAT outlined above. Whilst the systems themselves may have commonality, the outcomes required are separate; therefore, separate sets of requirements must be defined in line with these two essential design requirements.

12.33 The following references also provide useful information on UM system requirements:

(a) MIL-HDBK-516C Change Notice 2[9], section 5.7.2

(b) MIL-STD-1530D Change 1 (Aircraft Structural Integrity Program), sections 5.4.4 and 5.5.1

(c) JSSG-2006 (Joint Service Specification Guide, Aircraft Structures), sections A.3.15 / A.4.15[10].

Superseded

12.34 **Design Requirement (Essential).** *A Structural Condition Monitoring system, as necessary to capture the structural condition data required to ensure the continued integrity of structural critical parts, must be defined.*

12.35 Capturing and assessing data describing the actual condition of the aircraft structure is an essential aspect of ensuring the continued integrity of structural critical parts. This allows comparison of actual degradation / damage with that assumed and predicted during design. Capturing the data required to achieve this outcome requires a dedicated SCM system.

12.36 The system should be developed to suit each individual aircraft type, including the certification basis and design philosophy, structural maintenance regime and structure that must be monitored. The following considerations should be taken into account by applicants when defining SCM system:

(a) The system must have the ability to capture the necessary data for all structural critical parts and other significant structure. The definition for what constitutes other significant structure will vary by aircraft type. Other significant structure should be included, as unanticipated degradation or unforeseen failure modes to such structure may warrant re-classification as critical parts.

(b) The system must have the ability to capture the necessary data from production to disposal for each aircraft.

(c) The system must have the ability to capture all structural discrepancies and structural inspection results[11] for the defined scope of structure.

(d) The system must have the ability to capture all the information necessary to enable subsequent assessment to determine the root-cause of discrepancies and impact on continued structural integrity. This should be defined through detailed input data requirements, including data sources and the required fields. Types of information should include (at a minimum) details of the discrepancy, details of the asset, when and how the discrepancy was found, and disposition of discrepancy.

12.37 Compliance with this design requirement should be demonstrated through system definition document(s). These should also be included, either directly or via reference, in the ASIMP.

12.38 The following reference also provide useful information on SCM system requirements:

(a) MIL-STD-1530D Change 1 (Aircraft Structural Integrity Program), sections 5.4.6 and 5.5.12.

Periodic Structural Integrity Assessment

12.39 **Design Requirement (Essential).** *The process for periodic assessment, as necessary to ensure the continued integrity of structural critical parts, must be defined.*

12.40 Periodic structural integrity assessments ensure the MTC (including type design, AwLs and operating limitations) and Instructions for Continuing Airworthiness (ICA) remain compliant with the TCB, and therefore that the risk of structural failure remains within that inherent in the TCB. This is primarily achieved by ensuring the assumptions made during design and certification that could

Superseded

affect the integrity of structural critical parts remain valid in light of actual operational usage and condition.

12.41 The periodic assessment philosophy and details will vary significantly based on the aircraft type and role, anticipated operational variability, certification basis and design philosophy. The following considerations should be taken into account by applicants when defining the periodic structural integrity assessment process:

(a) The process must ensure that detailed and quantitative analysis will be conducted to compare actual ADF usage and condition to design assumptions to ensure that the MTC (including type design, AwLs and operating limitations) remain compliant with the TCB, and that all relevant ICA and monitoring provisions remain appropriate.

(b) The process must define the necessary assessment types and associated frequencies and / or triggers.

12.42 Compliance with this design requirement should be demonstrated by documentation that defines the assessment process. This should also be included, either directly or via reference, in the ASIMP.

12.43 The following reference also provide useful information related to periodic structural integrity assessment:

(a) MIL-STD-1530D Change 1 (Aircraft Structural Integrity Program), sections 5.5.3, 5.5.6, 5.5.7, 5.5.8[12] and 5.5.13.

Ageing Aircraft Structural Requirements

12.44 This is a placeholder for an anticipated Q4 2022 update to this chapter detailing DASA's design requirements related to the threats associated with ageing of aircraft structures.

Superseded

PROPULSION SYSTEMS

INTRODUCTION

13.1 This chapter provides airworthiness design requirements for Defence aircraft propulsion systems. This chapter is applicable to crewed aircraft and certified-category uncrewed aircraft. Within the context of the DASR and this chapter, DASA defines the aircraft propulsion system as including but not limited to the engine and propeller, including sub-systems, accessories and controls. For aircraft powered by reciprocating engines, auxiliary power units, or other turbomachinery, the applicant should seek DASA advice as to whether the content of this chapter is applicable. DASA advice should be sought as to the extent this chapter is applicable to:

(a) aircraft powered by reciprocating engines; or

(b) auxiliary power units and other turbomachinery.

13.2 This chapter is not applicable to propulsion systems fitted to munitions.

13.3 The airworthiness codes recognised by DASA (refer Section 1 Chapter 3) provide an appropriate benchmark for establishing and maintaining an adequate level of safety for aircraft propulsion systems. However, DASA has identified the following three circumstances where recognised airworthiness codes may require supplementation:

(a) Propulsion system environment requirements in some civil airworthiness codes are assessed as inadequate for the Defence CRE.

(b) Novel propulsion system configurations or technologies are used that may not be adequately covered by current recognised airworthiness codes.

(c) The nature of proposed military operations dictates the need for more complex and proactive in-service propulsion system integrity management (over and above that contained in some airworthiness codes) to ensure risk of failure remains within that inherent in the Type Certification Basis (TCB).

13.4 The requirements and associated discussion in this chapter are framed around these circumstances. When developing a certification basis for a Military Type Certificate (MTC), Major Change or Military Supplemental Type Certificate (MSTC), each applicant will need to assess the airworthiness design requirements inherent in the baseline Primary Certification Code (PCC) or standard and supplement or tailor, as required, using the requirements in this chapter. Applicants are highly encouraged to engage early with DASA as part of this process. Note that three likely scenarios exist for any given DASDRM requirement:

(a) Intent of DASDRM requirement is not met by any requirement in the underlying PCC / standard. In this case, the applicant would need to supplement the PCC / standard to add a new requirement.

(b) Intent of DASDRM requirement is partially met by an existing requirement in the underlying PCC / standard. In this case, the applicant may tailor the existing requirement so that it meets the full intent of the DASDRM requirement.

Superseded

(c) Intent of DASDRM requirement is fully met by an existing requirement in the PCC / standard. In this case, the applicant may propose to DASA that no supplementation or tailoring is required.

13.5 Separate to the DASA-prescribed airworthiness requirements under the DASR and DASDRM, it is Defence Policy[1] that each Defence-registered aircraft type have an effective and efficient Propulsion System Integrity Program (PSIP) to:

(a) ensure, so far as is reasonably practicable, that degradation of integrity does not present risks to health and safety

(b) contribute to delivery and assurance of capability

(c) support cost-effective sustainment of capability.

13.6 Under Defence Policy, the Defence-preferred approach for PSIP is alignment with MIL-STD-3024; a cradle-to-grave management framework for propulsion system integrity that encompasses system requirements, design, verification and sustainment. Despite the fact that the PSIP remit and objectives are broader than safety, an effective PSIP is key to supporting the essential design requirements set out in this chapter.

13.7 The PSIP for each aircraft type should be documented in a Propulsion System Integrity Management Plan (PSIMP). PSIMPs are key documents that assist applicants and the regulated community by maintaining a record of relevant propulsion system certification information and data, and demonstrate how the PSIP complies with the design requirements prescribed in this chapter and supports related DASR obligations[2].

PROPULSION SYSTEM TYPE CERTIFICATION

Propulsion System Type Certification Basis

13.8 **TCB Foundation.** As outlined above, the airworthiness codes recognised by DASA provide an appropriate benchmark for developing a TCB for aircraft propulsion systems, subject to supplementation and / or tailoring[3] to address the requirements provided in this chapter and any unique Defence CRE aspects.

13.9 For cases where Defence is acquiring a propulsion system where the baseline design requirements are not a recognised airworthiness code, then applicants are recommended to use the European Military Airworthiness Certification Criteria (EMACC) Handbook, in conjunction with this chapter, to develop and propose for Authority approval a comprehensive set of airworthiness design requirements for propulsion system certification. Applicants are highly encouraged to engage early with DASA if this is the case.

13.10 **Civil-Certified Propulsion Systems.** In some cases, additional design requirements, or additional compliance evidence for existing design requirements, may be required for civil-certified propulsion systems to account for the Defence CRE. For example, this could be applicable for military-specific configuration additions such as engine air particle separators, signature suppression systems or afterburner modules, and military-specific environments such as armament gas ingestion, armament vibration, military threats (e.g. electromagnetic or ballistic) and more severe sand, dust, corrosive and icing conditions.

Superseded

13.11 **Novel Propulsion System Technologies.** The aviation industry is actively pursuing novel propulsion system technologies such as distributed engine configurations, electric and electric-hybrid energy sources and adaptive-cycle turbine engines. Whilst the near-term intended applications for many of these novel technologies is the light and very light aircraft segments, novel technologies will inevitably be used in Defence aircraft. The current airworthiness codes recognised by DASA do not adequately address the full scope of design requirements that would be necessary to certify most of these novel technologies. Whilst some Authorities are working on special conditions, these are mostly for individual applications or may not cover the categories of aircraft that Defence may acquire.

13.12 Therefore, where a novel propulsion system technology is to be employed for a Defence aircraft, suitable design requirements must be identified and proposed to DASA for approval.

Compliance Demonstration and CRE Assessment

13.13 For propulsion system products and their respective systems integration aspects, Defence's type certification approach almost exclusively relies on fully or partially leveraging prior NAA/MAA certification. Performing a CRE Assessment (CREA) is an essential part of this process to ensure the prior certification is applicable for the Defence CRE and the design is safe for the intended Defence use.

13.14 Failure modes for propulsion systems (in particular fatigue) can be highly sensitive to small changes in usage, loads and environment. Therefore, CREAs for propulsion systems usually require detailed and quantitative analysis. Applicants for a MTC who are leveraging prior NAA/MAA certification should undertake an initial 'mission analysis'[4], as described below under the Ongoing Monitoring and Periodic Assessment section, in order to satisfy the propulsion system aspects of the CREA requirement (refer DASR GM 21.A.20).

Critical Parts and Airworthiness Limitations

13.15 The propulsion system critical parts and associated Airworthiness Limitations (AwLs), consistent with the TCB and the intended Defence CRE, must be identified during type certification (refer DASR AMC 21.A.41).

SUPPLEMENTARY PROPULSION SYSTEM DESIGN REQUIREMENTS

Critical Part Life Tracking

13.16 Variations in actual aircraft usage, environment and configuration can have a significant impact on when propulsion system critical part AwL actions (such as component retirement or inspections) need to be performed. This is especially the case for military operations where there is typically higher variability in mission profiles compared to the civil sector.

13.17 The airworthiness codes recognised by DASA vary in terms of life tracking requirements. For example, civil airworthiness codes require AwLs to be identified[5], however, they do not sufficiently address requirements for tracking life accrual necessary in the military context. DASA therefore prescribes the following essential airworthiness design requirement:

Superseded

13.18 **Design Requirement (Essential).** *The process for tracking life accrual of propulsion system critical parts shall be defined, commensurate with the complexity of the corresponding AwL requirements.*

13.19 AwLs include, and will define, the lifing metric(s) and any algorithm, equation, factor(s) or other engineering data, which must be used to calculate life accrual. The complexity of the process for tracking life accrual of propulsion system critical parts will vary based on the complexity of the AwL definition.

13.20 In many circumstances, the process for tracking life accrual of propulsion system critical parts will require a dedicated system. In this context, the 'system' will typically comprise on-board and off-board hardware and software for data recording, processing and analysis, as well as the associated procedures[6]. The philosophy and design of the system must be based on the: certification basis; the propulsion system type and role; the nature and definition for each AwL; anticipated operational variability (i.e. mission profile and mission mix variability) and uncertainty around ADF CRE. The following considerations should also be taken into account by applicants:

(a) The system must ensure that the accomplishment of AwL actions for individual components takes into account the applicable parameters that contribute to life degradation.

(b) The system must have the ability to capture the necessary input data from all ground and flight operations (including development and / or acceptance testing) from the entry into service through to the retirement of each engine or propeller.

(c) The system must have the ability to identify and appropriately account for any missing or invalid data.

(d) The system must have the ability to track critical part life accrual per individual component, per module or per engine as required. The level of tracking and serialisation fidelity must ensure that individual critical parts do not exceed the underlying basis of AwLs.

(e) Requirements must ensure the system will be validated prior to fielding. Validation should test the entire system (on-board and off-board elements) in an end-to-end fashion (i.e. from raw / input data through to the AwL lifing metric outputs). Validation should ensure that the specified system will produce reliable, repeatable and suitably conservative outputs so that AwLs are not exceeded in-service.

13.21 Compliance with this design requirement should be demonstrated through system validation / test report(s), and documentation that defines the process, and where relevant, the dedicated system. These should also be included, either directly or via reference, in the PSIMP.

13.22 Once in-service, the CAMO must maintain a record of the current status of service life limited components (i.e. track life accrual against AwLs to meet continuing airworthiness obligations - refer DASR M.A.305(d)(4)). Compliance with the essential design requirement above will ensure that the requirements and process for tracking life accrual of propulsion system critical parts are clearly defined up-front as part of type certification.

13.23 The following references also provide useful information on propulsion system life tracking requirements:

(a) MIL-HDBK-516C (Airworthiness Certification Criteria), section 7.2.3.6

(b) MIL-HDBK-1783B Change 2 (Engine Structural Integrity Program (ENSIP)), sections A.4.19, A.5.19.c and A.5.19.d.

Superseded

13.24 During design of a propulsion system, OEMs develop critical part AwLs based on predicted engine operation, material behaviour and environment. The OEM's design assumptions[7] are typically based on the intended aircraft role(s) and cannot always specifically account for each operator's individual usage, environment and configuration throughout the entire life-cycle of a propulsion system. This is especially the case for military operations as roles, tactics and operating environments for a given propulsion system can vary significantly between operators and evolve over time. For military aircraft, monitoring accrual of lifing parameters against AwLs alone is insufficient to ensure that engines continue to operate within the risk level inherent in the TCB.

13.25 The term 'mission analysis' is used to describe the process of:

(a) collection of parametric flight data needed to define the operating and environmental conditions that can impact propulsion system critical part AwLs,

(b) periodic assessment of this data to determine if the current critical part AwLs remain valid for the operator, and

(c) as required, calculation of new critical part AwLs based on updated design assumptions that reflect actual and anticipated usage and environment.

13.26 The airworthiness codes recognised by DASA vary in terms of requirements that meet the intent of mission analysis. DASA therefore prescribes the following essential airworthiness design requirement:

13.27 **Design Requirement (Essential).** *A plan for ongoing monitoring and periodic assessment (mission analysis), as necessary to ensure the continued integrity of propulsion system critical parts, shall be documented.*

13.28 The mission analysis philosophy and details will vary significantly based on the propulsion system type and role, anticipated operational variability, certification basis and design philosophy. The following considerations should be taken into account by applicants when documenting the mission analysis plan:

(a) The usage and environmental parameters that need to be monitored in-service, plus any other input data requirements, must be defined. Data requirements should be based on advice from the relevant OEM or organisation capable of conducting the mission analysis.

(b) System requirements must be established to enable collection of the required usage and environmental parameters. Note that there may be a high degree of commonality between the parameters and system required to collect data for mission analysis and that required for critical part life tracking. The system requirements should include mechanisms to ensure that the data collected is:

1. accurate and valid; and

2. representative of all ADF operations and environments (if the entire fleet is not going to be continuously monitored).

(c) The plan must ensure that detailed and quantitative analysis will be conducted to compare actual ADF usage and environment parameters to design assumptions and ensure that any impact(s) on critical part AwLs will be identified. For this reason, the conduct of mission

Superseded

analyses should be undertaken by the OEM, or an appropriately competent and experienced organisation with access to the necessary type design data.

(d) The plan must ensure that all propulsion system critical parts and all AwL aspects will be sufficiently covered, including mandatory life limits and inspection requirements, and any algorithm, equation, factor(s) or other engineering data that is used to calculate life accrual against AwL intervals.

(e) The plan must ensure that mission analysis outputs will either:

1. explicitly confirm that critical part AwLs remain appropriate for the Defence CRE and for preventing occurrence of hazardous propulsion system effects, or

2. as required, provide updated critical part AwLs (including any algorithm, equation, factor(s) or other engineering data to calculate life accrual) along with the substantiation necessary to approve the updated AwLs under DASR 21.

(f) The plan must document the organisational and contractual or international arrangements (including data sharing agreements) that are present to ensure that the plan is implementable.

(g) The plan must ensure that mission analyses will be conducted at a frequency that ensures the effective certified lives / intervals will not be exceeded, even in the case of a significant underestimation of actual usage severity. The frequency of routine mission analysis may need to vary throughout life of the aircraft based on CRE evolution, and dedicated mission analysis should be conducted whenever a significant CRE change is planned. Ongoing monitoring of usage and environment parameters should be conducted to identify any CRE changes that may trigger an amended mission analysis schedule.

13.29 Compliance with this requirement should be demonstrated by documentation that defines the mission analysis plan or statement of work. This should also be included, either directly or by reference, in the PSIMP.

13.30 Once in-service, the MTCH must ensure the continued integrity of the propulsion system through ongoing monitoring and periodic assessment (i.e. as a continued airworthiness obligation - refer DASR 21.A.44(c)). Compliance with the essential design requirement above will ensure that the plan for propulsion system ongoing monitoring and periodic assessment are clearly defined up-front as part of type certification.

13.31 The following references also provide useful information on propulsion system mission analysis (or equivalent terminology) requirements:

(a) MIL-STD-3024 Change 1 (Propulsion System Integrity Program (PSIP)), section 5.1.4.1.6

(b) MIL-HDBK-1783B Change 2 (Engine Structural Integrity Program (ENSIP)), sections A.4.19 and A.5.19.b

(c) EASA AMC E 515 (Engine Critical Parts), section 3(g)

(d) FAA AC 33.70-1 Change 1 (Guidance Material for Aircraft Engine Life Limited Parts Requirements), section 8.g.

Superseded

13.32 Further guidance on implementing the propulsion system requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

AIRBORNE LASERS

INTRODUCTION

14.1 Airborne lasers on Defence aircraft may present a hazard to the safe operation of the host aircraft if the laser is not integrated in a manner that prevents inadvertent exposure of aircrew/ occupants, or aircraft structure and systems, to laser emissions. Further, hazards to other airspace users or people on the ground may result from inappropriate laser design requirements that do not limit the potential for such exposure to occur. Where airborne lasers have a classification that presents personnel exposure hazards, or the laser design is such that contact with the laser beam or by-products of transmission could cause damage to the aircraft, compliance with appropriate design requirements assists to safely integrate the laser into a Defence aircraft. Not all of the Authority recognised Airworthiness Codes in Section 1 of the DASDRM prescribe requirements for the safe integration of airborne lasers. Consequently, the Authority prescribes laser safety, integration and operation design requirements to supplement the civil and military Codes.

Scope

14.2 This chapter of the DASDRM presents Authority prescribed design requirements for Defence aircraft airborne lasers that have the capacity to present a personnel exposure hazard, or pose a hazard to safe aircraft operations through laser beam contact with the aircraft or the generation of by-products.

AIRBORNE LASER DESIGN REQUIREMENTS

14.3 Laser systems fitted to Defence aircraft must not pose a hazard to safe operation of the aircraft through either exposure of aircrew or other aircraft occupants, inadvertent lasing of the aircraft or impact of laser by-products. This section presents the Authority prescribed laser system airworthiness design requirements for Defence aircraft.

Laser personnel safety

14.4 **Design requirement (Essential).** *Aircraft occupants must not be exposed to laser emissions that exceed the thresholds defined in AS/NZS IEC 60825.1 Safety of laser products - Part 1: Equipment classification and requirements.*

14.5 Laser emissions from Defence aircraft may pose hazards to personnel. Designers must ensure that Defence aircraft laser systems do not expose occupants to emission levels that exceed the thresholds defined for laser classifications in AS/NZS IEC 60825.1. Designers must also analyse emissions from Defence aircraft laser systems and establish appropriate safe distances to ensure that persons outside the aircraft are not exposed to emission levels that exceed the safe thresholds and to identify appropriate personnel protective measures where required.

Superseded

14.6 **Design requirement (Essential).** *Defence aircraft lasers must be 'certified' in accordance with the Defence Radiation Safety Manual Chapter 6.*

14.7 Laser certification per the Defence Radiation Safety Manual, Chapter 6, ensures the safe operation of lasers through establishing the applicable laser classification, and the resultant approach to management of associated hazards and risks.

Laser/airframe integration

14.8 **Design requirement (Essential).** *Laser systems must not:*

(a) *induce vibration, acoustic, thermal or structural loads that exceed aircraft limitations*

(b) *create a safety of flight hazard due to chemical by-products and exhaust gasses generated during laser operations.*

14.9 **Design requirement (Essential).** *The laser beam must not contact any part of the aircraft.*

14.10 Laser operation compatibility should be verified by analyses (e.g. structural, stress, mechanical load, electrical load, acoustical), explosive environment test and ground and flight demonstrations/tests. Exhaust gases or chemicals produced by laser operation must not exceed the concentrations defined as safe minimum values in any part of the aircraft or attached structures/ pods. Inadvertent contact with the airframe by either laser by-products or the laser beam may cause damage to critical airframe components. The laser software and/or hardware inhibitor (laser masking) controlling the laser field of regard must be designed so that the beam will not strike any part of the aircraft or any peripherals (i.e. stores, sensors and so on). Laser energy must not be reflected back into the eyes of the pilot, operator, crew, or personnel off any part of the aircraft during laser operations.

Laser operation

14.11 **Design requirement (Essential).** *Airborne laser installations must:*

(a) *only allow operation and direction of the laser beam by the crew (and maintenance personnel)*

(b) *not result in an unsafe (radiating) condition following failure or malfunction*

(c) *allow the crew (and maintenance personnel) to determine when the laser is functioning and to discern the direction of the beam.*

14.12 **Design requirement (Essential).** *The laser system must not be capable of inadvertent lasing when the aircraft is on the ground.*

14.13 Positive control of laser system operation must be provided to the crew (and maintenance personnel) to prevent inadvertent or unintentional operations of the laser during critical flight phases. The laser must be boresighted to the prescribed alignment limit, the sighting display must accurately point the laser to within prescribed limits and the aircraft and/or control station display must indicate clearly when and where the laser is firing. The laser system design must permit the crew or operator to maintain full control of the firing and pointing of the laser at all times. The laser must not fire unless activated by the crew or operator and immediately cease firing at a command from the crew, operator, or by system design. The laser must be controlled during ground operations to preclude inadvertent laser firing. Methods for preventing inadvertent laser firing include, but are not limited

Superseded

to, procedures for ground crew, redundant hardware (e.g. interlocks, interlock switches/weight on wheels), and software (e.g. armament, sensor).

Superseded

INDICATING SYSTEMS

INTRODUCTION

15.1 Aircraft indicating systems provide information to aircrew on the condition of aircraft systems and equipment, the aircraft's flight status and other parameters necessary for safe aircraft operation, and/or to maintain adequate situational awareness. The Authority recognised Airworthiness Codes defined in Section 1 of this manual prescribe requirements for aircraft indicating systems. However, Defence aircraft can utilise indicating systems, such as helmet mounted displays, that are not used in civil aircraft and represent relatively recent advancements in military aircraft technology. Consequently, the civil and military Airworthiness Codes may not prescribe requirements for these systems. Therefore, the Authority prescribes airworthiness design requirements for indicating systems, to supplement the civil and military Airworthiness Codes.

Scope

15.2 This Chapter presents Authority prescribed airworthiness design requirements for Defence aircraft indicating systems.

DEFENCE AIRCRAFT INDICATING SYSTEMS DESIGN REQUIREMENTS

15.3 Defence aircraft indicating systems must conform to standards appropriate to the functions that the instrument or display will perform. Authority recognised civil and military Airworthiness Codes prescribe design requirements that provide a sound foundation for the safe design of common Defence aircraft indicating systems (including those used as a Primary Flight Reference (PFR)). However, indicating systems that are in the early stages of technology development may be proposed for fitment to Defence aircraft to satisfy a capability need and design requirements for such systems may not have been prescribed in Authority recognised Airworthiness Codes. Consequently, applicants for an Australian MTC or MSTC must propose, for Authority approval, airworthiness design requirements based on the intended function and operation of the indicating system.

15.4 **Design Requirement (Essential).** *Where a novel indicating system for which design requirements are not prescribed in Authority recognised Airworthiness Codes is intended for use in a Defence aircraft, airworthiness design requirements for the indicating system must be identified, and proposed for Authority approval.*

15.5 Indicating systems are used for a wide variety of purposes ranging from those having no safety implications to those directly affecting safe flight. The proposed use of novel indicating systems must be clearly understood in order to define suitable design requirements. For example, novel indicating systems may be used to display information to the crew that:

(a) enhances situational awareness or represents mission system status or performance, where the loss or presentation of misleading information does not impact safe flight;

(b) could pose a hazard to safe flight if misleading information was presented to the crew; or

Superseded

(c) represents PFR information.

15.6 For those displays providing mission system status/performance or situational awareness information that does not impact safe flight if the information is lost or is misleading, failure of the equipment/system must not adversely impact other display system functions that present information necessary for safe flight. In these circumstances, the indicating system design requirements need only confirm that the system does not adversely affect other aircraft systems necessary for safe flight.

15.7 Where the presentation of misleading information may pose a hazard to safe flight in a novel display system (eg display of weapons system radar data on a HUD for weather avoidance), an additional level of data assurance is required, commensurate with the impact of the misleading data on safe operations. In these circumstances, the application of design requirements from the Authority recognised Codes for display systems having similar characteristics may be a suitable starting point, but is likely to require supplementation to account for the system's novel features or approach to displaying information.

15.8 The presentation of reliable and accurate PFR information is particularly important due to the data's criticality to safe aircraft operations. Such applications may not be adequately catered for by 'standard' indicating system design requirements prescribed in Authority recognised Codes, and additional design requirements are often necessary to provide the required level of design assurance for these systems. For example, helmet mounted displays (HMD) may provide both flight reference and mission systems information overlayed on the pilot's field of view. Where a HMD is required to function as a PFR, it must satisfy the applicable design requirements prescribed in civil and military Airworthiness Codes as a minimum. However, some unique features of HMD may pose hazards associated with the human machine interface that are not relevant to other types of displays (eg visibility of key flight data at all times may be problematic during head movement). These characteristics may not be adequately accounted for in Authority recognised Airworthiness Codes.

15.9 Where a novel application of an existing indicating system is proposed, airworthiness design requirements must be identified and proposed to the Authority for approval.

ADDITIONAL INDICATING SYSTEMS GUIDANCE

15.10 Further guidance on implementing the indicating systems design requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

SECTION 4 - UNCREWED AIRCRAFT DESIGN REQUIREMENTS

CHAPTER 1 - APPLICATION OF DESIGN REQUIREMENTS TO UAS

APPLICATION OF DESIGN REQUIREMENTS TO UAS

INTRODUCTION

1.1 Defence's regulations for Uncrewed Aircraft Systems (UAS), prescribed within DASR UAS, include three categories of UAS. Only two of these categories relate to the content within Section 4, namely:

(a) **Certified:** Intended for UAS operations where the UAS Operator expects to operate in all classes of airspace for which it is equipped, and over populous areas.

(b) **Specific:** Intended for UAS operations where the UAS is not certified to robust airworthiness standards. Consequently, increased operational limitations and use of risk controls provide for safe UAS operation.

1.2 As stated in Section 1 Chapter 1, the DASDRM prescribes design requirements for aircraft systems and functions that are necessary to achieve safe flight in Defence's proposed configuration, role and operating environment. This sets the scene for Sections 2 and 3 which prescribe additional design requirements particularly aimed at crewed aircraft. However, the UAS context can be somewhat different to crewed aircraft and must be accounted for before these requirements can be applied. The UAS context differences fall into two broad categories:

(a) **Absence of on-board crew.** Crewed aircraft design requirements may contain inherent assumptions that are not valid or appropriate for UAS. For example, Section 2 Chapter 7 Fire Protection includes visual monitoring and smell as legitimate indirect means for fire detection onboard an aircraft. The assumption here is that a crew is onboard the aircraft and will perform certain actions.

(b) **Shifted safety focus.** Crewed aircraft design requirements prescribed in Sections 1 – 3 are predominantly focused on 'safe flight' from the perspective of keeping the aircraft occupants alive, be they crew or passengers. Presently, UAS do not carry passengers or crew therefore 'safe flight' from the perspective of UAS occupants can be discounted. Rather, UAS 'safe flight' occurs when the risk to other airspace users, people on the ground, and critical infrastructure are suitably minimised.

1.3 With the above UAS context in mind, Section 4 presents design requirements for UAS by tailoring requirements in Sections 1-3, or prescribing bespoke UAS design requirements.

1.4 **Nomenclature.** UAS nomenclature varies widely between standards bodies, UAS associations, Aviation Authorities, and even within Defence itself. This chapter employs the UAS nomenclature from ICAO Doc 10019, Manual on Remotely Piloted Aircraft Systems (RPAS), since this will promote nomenclature compatibility with major international Aviation Authorities.

Superseded

1.5 Chapter 2 presents recognised Airworthiness Codes and design requirements for Certified category UAS. Chapter 3 presents criteria for determining the robustness of technical risk controls that can be applied to Specific category UAS.

1.6 Open category UAS, which must operate within Standard Operating Conditions, are not discussed in this manual on the basis of the Authority's assumption that these UAS have no design integrity. Therefore, the safety of Open category UAS operations is reliant primarily on operational risk controls.

Superseded

CERTIFIED CATEGORY UAS

INTRODUCTION

2.1 Certified category Uncrewed Aircraft Systems (UAS) are expected to operate in all classes of airspace for which they are equipped, and over all populous areas. Under such circumstances, certain failures of a Certified category UAS will lead to an increased likelihood of a mid-air collision with other airspace users, serious or fatal injury to people on the ground, or significant damage to critical infrastructure. To account for this, the Authority's approach to initial airworthiness for Certified category UAS is analogous to that adopted for crewed aircraft.

Scope

2.2 This chapter guides applicants in developing a Type Certification Basis (TCB) for a candidate Certified category UAS by prescribing design requirements for a fixed wing Uncrewed Aircraft (UA), be it a Remotely Piloted Aircraft (RPA) or one that flies autonomously, the Remote Pilot Station (RPS), and Command and Control (C2) link(s). Should other components of the UAS be shown by a Functional Hazard Assessment to make a direct contribution to airworthiness, then additional design requirements will be prescribed by the Authority.

RECOGNISED UAS AIRWORTHINESS CODE

2.3 DASDRM Section 1 Chapter 3 articulates the need for robust airworthiness design requirements, usually documented in an Airworthiness Code, to underpin the safe design of Defence crewed aircraft. This need is equally applicable to Certified category UAS.

2.4 The Authority recognises NATO STANAG 4671, Uncrewed Aircraft System Airworthiness Requirements, Edition 3, as an acceptable Airworthiness Code for fixed-wing UAS, provided it is supplemented with the design requirements defined in this chapter. STANAG 4671 was derived from EASA's Certification Specification (CS) 23 for small fixed wing aircraft, and has been accepted as a sufficient UAS Airworthiness Code by Military Airworthiness Authorities (MAAs) of NATO countries, albeit with some reservations.

2.5 The Authority notes that, circa 2021, STANAG 4671 has not yet been well exercised by UAS designers and MAAs, and therefore lacks a proven safety record. It has, however, undergone many years of review by international subject matter experts, and has a sound genesis in EASA's CS-23, and therefore presents a sufficient basis for a Defence Type Certification program provided Defence's design or acquisition organisations remain vigilant for deficiencies in the STANAG when comparing the STANAG's operating context to Defence's unique Configuration, Role, and operating Environment (CRE). Critically, these organisations must ensure a robust system safety program is implemented to identify and address UAS-unique hazards. Furthermore, throughout the life of the platform, continued vigilance will be required to identify early indicators that assumptions are not entirely valid, referenced design standards are not entirely effective, or additional hazards exist that weren't previously considered.

Superseded

2.6 STANAG 4671 assumes a particular context of use for the UAS. This is partly driven by its civil CS-23 genesis and partly by the scope of operations agreed by the STANAG sponsors. For the STANAG to be safely applied to a Defence UAS, the operating context needs to be fully understood, and any limitations addressed where necessary.

2.7 Relevant to what Defence normally considers to be within the scope of 'initial airworthiness' (and therefore requiring coverage in the TCB), STANAG 4671 specifically does not cover:

(a) airspace navigation, integration and segregation requirements (including "sense and avoid")

(b) the type of UAS operation (i.e. the specific military role and operating environment for the UAS)

(c) carriage and release of weapons, pyrotechnics and other functioning or non-functioning stores designed for release during normal operations

(d) non-deterministic flight, in the sense that UA flight profiles are not pre-determined or UA actions are not predictable to the UA crew

(e) piloting from an external or internal control box

(f) supersonic flight

(g) cyber security

(h) engines and propellers

(i) lithium batteries.

2.8 STANAG 4671 also does not cover the following design elements that can affect flight safety, but are not normally covered in TCBs for Defence crewed aircraft:

(a) control station security

(b) security of the command and control data link from wilful interference

(c) frequency spectrum allocation.

2.9 Design requirements for each paragraph 2.7 element are presented in this chapter. While design requirements are not presented for the paragraph 2.8 elements (which normally would not be included in a Defence TCB), Defence's design or acquisition organisations would still be expected to ensure they are robustly addressed.

2.10 This chapter also assumes the UA is not optionally piloted, nor will it carry passengers. A pervasive assumption within STANAG 4671 Edition 3 is that the UA is always uncrewed, and it is impractical to reverse this assumption. Where crew or passenger carriage is required, the Authority would expect a crewed aircraft Airworthiness Code to be used, supplemented to account for the unique UAS context.

2.11 Finally, both STANAG 4671 and this chapter inherently assume the UAS design, role and operating environment will not be excessively novel. However, cognisant of the rapidly evolving nature of UAS designs and their military use, this assumption may not always hold true. Depending on the issue, it may be possible to expand the System Safety Program to identify and manage the

Superseded

resulting unique safety hazards. In other cases, however, the Authority may conclude that STANAG 4671 provides an insufficient basis for a safe UAS design.

2.12 The following sections identify supplementation for STANAG 4671 Edition 3, separated into 'integrated' and 'system' design requirements, aligned respectively to Sections 2 and 3 of this manual.

UAS INTEGRATED DESIGN REQUIREMENTS

2.13 Section 2 of this manual covers engineering disciplines associated with crewed aircraft design that affect multiple aircraft systems or have an impact on most aspects of an aircraft's design. This part of the chapter covers a similar scope, and leverages extensively off Section 2.

2.14 Importantly, Section 2 assumes an Authority-recognised Airworthiness Code underpins the design. Each of the Essential and Recommended design requirements in Section 2 supplement the selected Airworthiness Code, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment. Unsurprisingly, those same issues will normally be equally relevant to a UAS underpinned by the STANAG 4671 Airworthiness Code, although in some instances the unique UAS context may add or remove some requirements.

System Safety

2.15 STANAG 4671 Edition 3 requires a UAS be designed to reduce risk to a level acceptable to the Certifying Authority, demonstrated through a system safety program that is a core aspect of any given design program (or design change). Cognisant of the significant variations in system safety approaches permitted by international MAAs, Section 2 Chapter 2 presents the Authority prescribed system safety design requirements for crewed aircraft. The essential design requirements in Section 2 Chapter 2 are equally applicable to design activities conducted for new Certified UAS and subsequent design changes, tailored as follows:

(a) Essential requirement 2.15 (single-point failures) is only applicable to Catastrophic consequences for UAS using STANAG 4671 Edition 3 consequence definitions.

(b) UAS using STANAG 4671 Edition 3 Development Assurance Levels and Design Assurance Levels do not need further supplementation through essential requirement 2.30 (software and complex electronic hardware).

2.16 Importantly, STANAG 4671 Edition 3 requires that any special military airworthiness requirements that result in an actual or potential hazard condition that reduces the margin of safety below the levels required by STANAG 4671 Edition 3 paragraph 1309 and its associated Acceptable Means of Compliance (AMC), whether temporary or permanent, will be addressed by suitable operational restrictions.

Aviation Software

2.17 STANAG 4671 Edition 3 requires that software satisfies applicable Design Assurance Levels. In addition to the STANAG 4671 Edition 3 requirements, the Authority guidance and prescribed supplementary aviation software design requirements in Section 2 Chapter 3 are equally applicable to a Certified UAS design.

Superseded

Electromagnetic Environmental Effects

2.18 While STANAG 4671 Edition 3 includes Electromagnetic Environmental Effects (E3) requirements, Australian legislation and Defence Policy, and Defence's intended CRE, necessitate supplementation to the TCB. Section 2 Chapter 4 presents the Authority prescribed design requirements for E3 that are equally applicable to design activities conducted for new Certified UAS and subsequent design changes, tailored as follows:

(a) Essential requirement 4.24 (aircraft occupants) is not applicable to the UA. It is, however, applicable to the occupants of the RPS as C2 link equipment may be located near to or integrated with the RPS.

2.19 Unlike certain crewed aircraft airworthiness design requirements and standards, STANAG 4671 Edition 3 does not include requirements to maintain the E3 hardness levels established by the initial design. Recommended requirement 4.31 (E3 life cycle hardness) seeks to address this by recommending applicants follow the guidance in MIL-STD-464C when determining if additional Instructions for Continuing Airworthiness (ICA) need to be developed. However, note that this recommended 'design requirement' is focused on ICA development rather than E3 design, therefore it does not need to be included in a TCB.

Human Factors Engineering

2.20 STANAG 4671 Edition 3 requires human factors be considered when evaluating failure conditions, however, there is limited guidance material in the STANAG on this crucial engineering discipline. The Authority's guidance and supplementary design requirements for human factors have been collated in Section 2 Chapter 5 and are equally applicable to a Certified UAS design.

Equipment Environmental Qualification

2.21 STANAG 4671 Edition 3 provides equipment environmental qualification design requirements based on a nominal operating environment. Historically, Defence's expected operating environment has often exceeded these nominal requirements. Consequently, the Authority has prescribed equipment environmental qualification design requirements in Section 2 Chapter 9 that are equally applicable to a Certified UAS design.

Aircraft/Stores Compatibility

2.22 STANAG 4671 Edition 3 does not cover UAS designs that allow the carriage and release of aircraft stores. Consequently, the Authority prescribed aircraft/stores compatibility design requirements in Section 2 Chapter 11 are relevant to a Certified UAS design. In applying these design requirements, designers must remain cognisant that for crewed aircraft, the presence of an on-board pilot may be an assumed risk control for a variety of stores-related hazards considered during a system safety program, such as confirmation of safe store carriage/separation through visual means or by on-board indicating systems not subject to datalink uncertainties. Therefore, the demonstration of compliance to Section 2 Chapter 11 requirements must not rely on indications normally received by, or actions performed by, an on-board pilot.

2.23 In complying with the system safety requirements discussed earlier in this chapter, consideration should be given to aircraft/stores compatibility safety hazards that, whilst not always

Superseded

UAS-unique, may create risks of greater likelihood than when those hazards apply to crewed aircraft. In particular, consideration should be given to the:

(a) unavailability of an on-board pilot to identify problems, either visually or through vibration, with uncommanded stores separations, hung stores, UA/stores contact during separation, stores failing to separate or fire when commanded, and damage from bird strikes and lightning strikes

(b) need for additional independent weapon release safety interlocks to account for problems with datalink availability, latency and corruption

(c) need for stores, especially weapons, to transition to a predetermined safe state during lost-link conditions

(d) prevention of unintended weapon arming caused by problems with datalink corruption

(e) means to make armed weapons safe when experiencing problems with datalink availability and corruption

(f) ability of the RP to identify stores' (especially weapons) status when faced with problems with datalink availability, latency and corruption.

2.24 **Design Requirement (Essential).** *Where the UA is to carry and release aircraft stores, the UAS system safety program must account for the lack of an on-board pilot.*

2.25 **Post store separation safety.** The inability to provide effective stores targeting creates safety hazards to the general public either near the stores' flight path or the stores' target area. For crewed aircraft, systems for targeting stores are not subject to datalink uncertainties and the on-board pilot may provide additional risk controls when the target area is visible. To ensure that UAS stores targeting is as effectively performed as for crewed aircraft, consideration should be given during UAS design to the:

(a) unavailability of an on-board pilot to identify problems with weapons targeting, either visually or through vibration, with uncommanded stores separations and UA/stores contact during separation

(b) adequacy of low-integrity GPS systems for weapons targeting in the absence of the visual observation of the target area

(c) problems with weapon targeting created by datalink availability, latency and corruption.

2.26 **Capability Design Requirement.** *Where the UA is to carry and release aircraft stores, the UAS design must consider the hazards to timely and accurate stores targeting created by the lack of an on-board pilot, use of low-integrity GPS systems, as well as datalink availability, latency and corruption.*

Cyber security considerations

2.27 Like most crewed aircraft Airworthiness Codes, STANAG 4671 Edition 3 does not contain cyber security design requirements. For UAS this omission may present an additional risk, given the dislocated nature of the RPS from the UA (which can remove a layer of protection against wilful interference), and the extent of UA control accessible via the C2 link. Consequently, the Authority prescribed cyber security design requirements in Section 2 Chapter 12 are equally applicable to a Certified UAS design.

Superseded

2.28 Where cyber security is identified as a credible threat to aviation safety, in-service management arrangements must also be identified and implemented to maintain the cyber security integrity and minimise risks throughout the UAS life of type.

UAS SYSTEM DESIGN REQUIREMENTS

Introduction

2.29 Section 3 of this manual covers systems on Defence aircraft for which the Authority has historically found Airworthiness Codes to be inadequate for Defence's intended CRE. This part of the chapter covers a similar scope, and leverages extensively off Section 3.

2.30 As with Section 2, Section 3 also assumes an Authority-recognised Airworthiness Code underpins the design and integration of the system onto a Defence aircraft. Each of the Essential and Recommended design requirements in Section 3 supplement the selected Airworthiness Code, where an aspect of a requirement is judged deficient or to support application to Defence's unique role and operating environment. Those same issues will normally be equally relevant to a UAS underpinned by the STANAG 4671 Airworthiness Code, although in some instances the unique UAS context may add or remove some requirements.

Communications Systems

2.31 STANAG 4671 Edition 3 does not prescribe design requirements for the communication systems needed for operations in particular classes of airspace. The design requirements in Section 3 Chapter 2 relevant to the intended classes of airspace are equally applicable to a Certified UAS design.

Flight Recorder and Locating Equipment

2.32 While STANAG 4671 Edition 3 prescribes design requirements for flight recorders and locating equipment, some requirements are open to negotiation with the Certifying Authority and the associated guidance material is generally limited. All essential design requirements in Section 3 Chapter 3 apply to a Certified UAS, but tailored as follows:

(a) Essential requirement 3.6 (flight recorders) is applicable to the UA.

(b) Essential requirement 3.11 (flight recorder power) is not applicable to UAS based on STANAG 4671 Edition 3 as it duplicates the requirements contained in USAR.1459.

(c) Essential requirement 3.16 (Emergency Locator Transmitter) is not applicable to UAS. An Emergency Locator Transmitter's primary purpose is to assist search and rescue to locate a crashed aircraft and provide aid to aircraft occupants as quickly as possible, thus increasing their chances of surviving an accident. Given that Authority prescription of UAS design requirements assumes the UA will not carry any crew or passengers, there is no impetus to carry an ELT. However, Command may choose to require the fitment of an emergency beacon to aid with the recovery of the UA, but this would be determined on the capability need rather than as an 'airworthiness' requirement.

2.33 For crewed aircraft, the placement of flight recorder equipment on-board the aircraft is a logical and practical design solution. For UAS however, the situation is not always as clear. In general, a UAS will have two locations where flight recorder equipment may be fitted; the UA and the RPS.

Superseded

These two locations are connected by a C2 link that can be lost or become degraded during operations. In keeping with crewed aviation principles, the Authority prescribes that flight recorder equipment be fitted on-board the UA as this provides the best opportunity to record all necessary information when the C2 link is lost or degraded. However, there is a view forming worldwide that flight recorder equipment should also be fitted to the RPS to provide complete coverage. While it may be possible to fit flight recorder equipment to the RPS alone and record information via the C2 link, this carries the risk that key information may not be recorded once the C2 link is lost or degraded, or that bandwidth limitations may restrict the information passed to the RPS from the UA. Applicants wishing to explore RPS only design solutions will need to approach the Authority to determine if their proposal will be accepted.

2.34 Finally, while not for inclusion in a TCB, the continuing airworthiness requirements listed in Section 3 Chapter 3 for flight recorder equipment and Emergency Locator Transmitters (where fitted) are equally applicable to Certified UAS.

Navigation Systems

2.35 STANAG 4671 Edition 3 does not prescribe design requirements for navigation systems. Defence UAS can operate in a global airspace environment that includes civil airspace that is subject to prescribed access criteria and adherence to specific Rules of the Air. While International Civil Aviation Organisation (ICAO) rules for civil aviation are not applicable to State registered aircraft, Defence UAS not capable of similar navigation performance to civil aircraft may be subject to civil airspace restrictions and sub-optimal routing. Consequently, the Authority's guidance and supplementary design requirements for navigation systems in Section 3 Chapter 4 are equally applicable to a Certified UAS design.

2.36 Several of the standards in Section 3 Chapter 4 inherently assume the pilot will be on-board the aircraft. In demonstrating compliance to those standards, the unique UAS context where the pilot is separated from the aircraft must be fully accounted for.

Surveillance and Avoidance Systems

2.37 STANAG 4671 Edition 3 does not include design requirements for surveillance and avoidance systems required for airspace integration and aircraft safe separation. While Defence UAS without surveillance and avoidance systems may not necessarily be precluded from operations in civil airspace, without the fitment of such systems sub-optimal routes and additional risk controls may be imposed. In extreme cases, Due Regard operations may end up being the only avenue for Defence to access certain airspace. Therefore, fitment of surveillance and avoidance systems in Defence UAS is, ultimately, a capability decision for the capability manager. The Authority's guidance and supplementary design requirements for surveillance and avoidance systems have been collated in Section 3 Chapter 5 and are equally applicable to a Certified UAS design.

2.38 The lack of on-board crew presents a number of unique challenges for UAS operating in uncontrolled airspace where the ability to 'see and avoid' (also commonly termed 'detect and avoid' when used in the UAS context) other aircraft is a key airspace entry requirement. Several technological solutions are in development worldwide that aim to provide UAS with the ability to detect and avoid other aircraft. STANAG 4671 Edition 3 does not cover 'detect and avoid' designs and the Authority is yet to prescribe associated design requirements. Additionally, care must be taken when considering existing crewed aircraft collision avoidance systems, such as TCAS II, as the underlying algorithms may be based on a defined set of aircraft dynamics that may or may not be

Superseded

applicable to either the UAS or the encounter traffic. It is also worth noting that a 'detect and avoid' system installed onto a UAS would be an item of installed equipment and would need to comply with all relevant STANAG 4671 Edition 3 requirements.

2.39 **Design Requirement (Essential).** *Where a detect and avoid capability is required for airspace access, design requirements for detect and avoid systems must be identified and proposed for Authority approval.*

Lighting Systems

2.40 STANAG 4671 Edition 3 lighting system design requirements may not account for certain military operations, such as external lighting to support air-air refuelling or formation flight. The Authority's guidance and supplementary design requirements for lighting systems in Section 3 Chapter 7 are equally applicable to a Certified UAS design.

Electrical Systems

2.41 Defence experience with electrical systems has shown that simple application of Airworthiness Codes may still pose hazards to safe aircraft operations in Defence's unique CRE, and this is equally relevant to STANAG 4671 Edition 3. All essential design requirements in Section 3 Chapter 8 therefore apply to a Certified UAS, but tailored as follows:

(a) Essential requirement 8.11 (Wiring with PVC) is only a recommended requirement for UAS based on STANAG 4671 Edition 3. Polyvinyl chloride (PVC) releases hydrogen chloride gas when burnt or subject to high temperatures, which transforms into hydrochloric acid on contact with moisture causing sight and breathing impairment. While there are no crew or passengers on-board a STANAG 4671 Edition 3 based UA, designers should confirm the presence of hydrochloric acid generated from electrical system faults will not cause secondary failure modes or longer-term UA degradation.

Environmental Control Systems

2.42 Defence experience with Environmental Control Systems (ECS) has shown that simple application of Airworthiness Codes may not adequately account for the Australian operating environment, particularly where ground operations in harsh environmental conditions are expected, and for some military loads and mission systems. This is equally relevant to STANAG 4671 Edition 3. The Authority's guidance and supplementary design requirements for ECS in Section 3 Chapter 9 are therefore equally applicable to a Certified UAS design.

Aircraft Structural Integrity

2.43 STANAG 4671 Edition 3 does not prescribe an Aircraft Structural Integrity Program be developed for UA. Defence experience is that effective and efficient management of structural integrity is required to ensure ongoing airworthiness, and to preserve the asset to its Planned Withdrawal Date (PWD). The Authority's guidance and supplementary design requirements for aircraft structural integrity in Section 3 Chapter 12 are equally applicable to a Certified UAS design.

Superseded

Propulsion Systems

2.44 STANAG 4671 Edition 3 does not cover engine and propeller design, so bespoke design requirements need to be included in the TCB for the UAS. While an Authority recognised Airworthiness Code for engines and propellers provides a sound basis for these design requirements, from a safety perspective some elements may be excessive and/or insufficient. For example, given the STANAG assumes flight profiles similar to that of General Aviation, UAS designed to perform certain military flight profiles, such as aerobatics or carriage and release of stores, may necessitate additional supplementation to or tailoring of the recognised Airworthiness Code. Additionally, due to the absence of on-board crew and/or passengers, a UA engine failure may not constitute a catastrophic hazard, potentially allowing some relaxation of engine design goals. Conversely, engine design requirements for crewed aircraft may implicitly expect certain observations and actions by on-board crew, and these need to be accounted for in the UAS system safety program.

2.45 Accordingly, while the Authority's guidance and supplementary design requirements in Section 3 Chapter 13 are applicable to a Certified UAS design, there may be room for judicious tailoring or a need for further supplementation.

2.46 **Design Requirement (Essential).** *A relevant Authority-recognised engine Airworthiness Code is to be used for UA engine design, with tailoring and additional requirements identified as necessary, and proposed for Authority approval.*

2.47 **Design Requirement (Essential).** *A relevant Authority-recognised propeller Airworthiness Code is to be used for UA propeller design, with tailoring and additional requirements identified as necessary, and proposed for Authority approval.*

2.48 As UAS designs are still evolving worldwide, novel forms of propulsion will inevitably emerge. Certified UAS employing novel forms of propulsion designs will require the development and inclusion of suitable design requirements.

2.49 **Design Requirement (Essential).** *Where a novel form of propulsion is to be employed, design requirements must be identified and proposed for Authority approval.*

Airborne Lasers

2.50 STANAG 4671 Edition 3 does not include design requirements for airborne lasers that have the capacity to present a personnel exposure hazard, or pose a hazard to safe aircraft operations through laser beam contact with the aircraft or the generation of by-products. All essential design requirements in Section 3 Chapter 14 are equally applicable to a Certified UAS, but tailored as follows:

(a) Essential requirement 14.4 (Aircraft occupant exposure) is not applicable to UAS as there will not be any UA occupants.

(b) Essential requirement 14.8.B (chemical by-products/exhaust gasses) is not applicable to UAS. However, while not an airworthiness issue, designers still have a WHS duty to ensure lingering chemical by-products or exhaust gasses do not pose a hazard to maintenance personnel.

Superseded

Indicating Systems

2.51 As UAS designs are still evolving worldwide, novel forms of indicating systems may emerge. The Authority's guidance and supplementary design requirements for novel indicating systems in Section 3 Chapter 15 are equally applicable to a Certified UAS design.

EMERGING UAS CONSIDERATIONS

Introduction

2.52 STANAG 4671 assumes a particular context of UAS use. Over time, emerging technologies, threats and UAS missions may exceed that context of use. Several potential future issues have been identified in this section, along with Authority-prescribed design requirements. Where these issues are shown to have an effect on airworthiness, the Authority may approve the inclusion of the design requirements into the TCB for the UAS.

Non-deterministic flight

2.53 STANAG 4671 Edition 3 makes provision for automated contingency flight logic and criteria, as the behaviour has generally been pre-programmed for each mission and the resultant actions are predictable. However, STANAG 4671 Edition 3 does not cover 'non-deterministic flight', in the sense that the aircraft's flight profiles are not pre-determined or its actions are not predictable to the Remote Pilot (RP) or Air Traffic Control. Supplementation will therefore be required for Certified UAS that can perform non-deterministic operations. This supplementation need only cover the non-deterministic aspects that have a direct and potentially negative impact on airworthiness.

2.54 **Design Requirement (Essential).** *Where a UAS design will implement a capacity for non-deterministic operation, design requirements must be identified and proposed for Authority approval.*

Unconventional launch and recovery methods

2.55 STANAG 4671 Edition 3 assumes that 'conventional' take-off and landing on paved runways will be utilised by the UA. Where unconventional means of UA launch and/or recovery are to be employed, supplementation to STANAG 4671 Edition 3 may be required. Any supplementation will be limited to those issues where a direct link to aviation safety can be established. For example, a Rocket Assisted Take-Off (RATO) may impose additional airframe stresses, and these must be accounted for in the airframe design. Novel recovery designs may need to account for incorrect operation of the capture mechanism, additional ICA may be required, and so on.

2.56 **Design Requirement (Essential).** *Where unconventional launch and/or recovery is to be employed, design requirements must be identified and proposed for Authority approval.*

Supersonic flight

2.57 STANAG 4671 Edition 3 does not cover supersonic flight profiles and related design considerations. Supersonic flight will require supplementation to STANAG 4671 Edition 3.

Superseded

2.58 **Design Requirement (Essential).** *Where supersonic flight is required, design requirements must be identified and proposed for Authority approval.*

Manual operator control during normal flight operations

2.59 STANAG 4671 Edition 3 excludes UAS designs where a RP must manually control pitch, roll, yaw and/or thrust as part of normal flight operations, which it refers to as “piloting from an external or internal control box”. Supplementation to STANAG 4671 Edition 3 will be required if this method of UA control is to be employed, to account for issues such as the lack of visual cues and haptic feedback an on-board pilot would have received, control latency due to the dislocated state of the RPS and UA, and the potential for a lost or degraded C2 link.

2.60 **Design Requirement (Essential).** *Where manual control of pitch, roll, yaw and/or thrust is required as part of normal operations, design requirements must be identified and proposed for Authority approval.*

Superseded

SPECIFIC CATEGORY UAS

INTRODUCTION

3.1 Specific category UAS rely primarily on the use of technical and operational risk controls to achieve safe operation. Technical risk controls can vary in their applicability, reliability, effectiveness, and demonstrated design integrity, therefore understanding the 'robustness' of implemented technical risk controls is crucial to developing a suite of credible and defensible risk controls to support Specific category UAS operations.

Scope

3.2 This chapter explores how common technical risk controls can be implemented and the resulting contribution provided to the safety of Specific category UAS operations.

TECHNICAL RISK CONTROLS

3.3 This is a placeholder for a future update to this section detailing the Authority's view on the 'robustness' of technical risk controls proposed in support of Specific category UAS operations. In the interim, please contact the chapter Sponsor for the latest guidance.

Superseded

SECTION 5 - AIRCRAFT SUPPORT SYSTEMS

CHAPTER 1 - APPLICATION OF DESIGN REQUIREMENTS TO AIRCRAFT SUPPORT SYSTEMS

APPLICATION OF DESIGN REQUIREMENTS TO AIRCRAFT SUPPORT SYSTEMS

1.1 Safe flight of Defence aircraft may be affected by mission/role equipment, support systems and ground based equipment that interface directly with or are carried on board the aircraft and, therefore, the Authority prescribes airworthiness design requirements for these systems and equipment.

Scope

1.2 Section 5 of the DASDRM presents the prescribed airworthiness design requirements for the following aircraft support systems and ground based, role and/or mission equipment:

(a) aeronautical life support equipment

(b) mission planning systems

(c) electronic flight bags

(d) aerial delivery of materiel

(e) role equipment and portable electronic devices

(f) petroleum, oils, lubricants and allied products.

1.3 For enquiries regarding the content of the chapters in this section, readers should contact the chapter sponsor detailed in Annex A to Section 1 Chapter 1 in the first instance.

Superseded

AERONAUTICAL LIFE SUPPORT EQUIPMENT (ALSE)

INTRODUCTION

2.1. DASR ORO.40 prescribes the requirements for Military Air Operator (MAO) approval for the carriage and use of Aeronautical Life Support Equipment (ALSE). Under DASR ORO.40, MAO approval of ALSE is supported by a technical assessment that establishes the level of compliance of the ALSE with prescribed design requirements. Compliance may be demonstrated by either the ALSE having been certified as part of the aircraft type design, or by a technical assessment conducted in accordance with the provisions of the regulation.

2.2. The design of ALSE and the interface and interaction between the ALSE and the host aircraft must be comprehensively assessed during Defence aircraft acquisition and/or design changes. Failure to do so can result in ALSE that is not fully compatible with the aircrew/aircraft, or provides an inadequate level of aircrew protection.

2.3. **Role of Aeronautical Life Support Logistics Management Unit (ALSLMU).** ALSLMU is the Defence Subject Matter Expert (SME) for ALSE with respect to all Defence aircraft. The ALSLMU Deputy Senior Design Engineer (DSDE) may be appointed as a Delegate of the Safety Authority as ALSE 'Standards- DoSA (ALSE)' with scope to prescribe, revise and interpret design requirements for ALSE. ALSLMU should be engaged at the earliest opportunity during a new platform procurement, ALSE replacement or design change program to ensure that adequate advice is available to support application of these design requirements during the requirements definition phase and ensure suitability of an ALSE solution as the program matures.

Scope

2.4. This chapter presents the Authority prescribed design requirements, including aircraft integration requirements where applicable, for ALSE. The design and integration requirements provide MAO and CASG System Program Office teams with a basis for establishing that ALSE related risks to safety have been eliminated or otherwise minimised 'So Far as is Reasonably Practicable' (SFARP). The chapter also presents guidance on the technical evaluation of ALSE to support compliance with the prescribed requirements and operational commander decisions on approvals, where required.

DEFINITIONS

2.5. The following definitions are relevant to this chapter:

(a) **ALSE.** ALSE is equipment that supports Defence capability and aircrew in the performance of their duties throughout aircraft operations, including the time during and following a survivable aircraft accident and evacuation. The ALSE may form part of an ensemble or may be fitted as an aircraft store.

Superseded

(b) ALSE can be considered as Safety ALSE (providing aircrew and passengers protection from environmental hazards during flight, survivable accident or incident, evacuation and post evacuation survival) and/or Mission ALSE (providing improved physical performance or functions necessary to support the achievement of an aircrew role). A frequent implementation of ALSE classified as both Mission and Safety is the helmet, which serves as safety equipment in the event of a crash while serving as mission equipment when supporting hearing and eye protection components, Night Vision Goggles (NVG), Lighting and other accessories. The categorisation of ALSE as Safety or Mission does not impact the applicability of standards prescribed within this chapter.

(c) **ALSE Ensemble.** An ALSE Ensemble consists of compatible equipment components that form an integrated ALSE solution that is worn by aircrew or passengers whilst performing duties primarily on-board the aircraft.

2.6. **ALSE Domains.** To support prescription of design requirements for the various types of ALSE, ALSLMU has defined 17 ALSE Domains. The Domains are defined to group similar types of equipment that are divided into 6 overarching categories. The following ALSE Domains are used:

(a) Head Protection

1. Helmets
2. Eye and Face Protection

(b) Inflatables

1. Life Preservers
2. Anti-G Suits
3. Life Rafts

(c) Load Carriage and Restraint

1. Carriers and Ensemble Integration
2. Hoisting Equipment
3. Out of Seat Restraint Systems
4. Ballistic Protection

(d) Post Evacuation Survival

1. Survival Aids
2. Thermal / Immersion Protection
3. Survival Kits and Rescue Packs

(e) Respiration

1. Oxygen / Smoke and Fumes Masks
2. Underwater Emergency Breathing

(f) Sensory Protection

Superseded

1. Hearing Protection

2. Night Vision Systems

3. Chemical, Biological, Radiological and Nuclear (CBRN) Protection.

CERTIFICATION OF ALSE

2.7. As discussed above, Defence manages ALSE within a construct of 'ALSE domains'. To facilitate the technical assessment of ALSE required under ORO.40, these 'domains' have been used to establish which ALSE should be considered under the aircraft's type certification and which should not.

2.8. Note that before approval for use, all ALSE must be subject to technical evaluation to confirm that it meets relevant design requirements and, where applicable, integration requirements, regardless of whether the ALSE is certified as part of the aircraft's type design or not.

2.9. Certification of ALSE can often be a complex undertaking and, therefore, advice on the application of and compliance with design requirements is to be sought from ALSLMU as early as possible within the project lifecycle.

ALSE included within the aircraft's certified type design

2.10. Certification of this ALSE will occur via design approval conducted in accordance with the requirements of DASR 21, to demonstrate that the ALSE complies with the design requirements in this chapter and in other applicable sections of the DASDRM. Relevant ALSE design requirements will be documented in the aircraft's Type Certification Basis (TCB).

2.11. The ALSE domains that are included in the aircraft's certified type design are:

(a) life preservers

(b) life rafts

(c) survival aids

(d) respiratory

(e) night vision systems (integration requirements only)

(f) chemical, biological, radiological and nuclear (CBRN) protection (integration requirements only).

ALSE not included in the aircraft's certified type design

2.12. While only four of the seventeen ALSE domains are included within a Defence aircraft's certified type design (plus the two domains where integration requirements are included), equipment within the remaining domains must still be subject to a robust evaluation of its technical and operational capabilities to ensure that it can safely perform its function when required. Consequently, the Authority also prescribes design requirements for these ALSE domains.

Superseded

2.13. For ALSE not forming part of the aircraft's certified type design, formal confirmation that the ALSE meets the relevant design requirements in this chapter is required to support ALSE approval per ORO.40.

2.14. The ALSE domains that are generally not included in the aircraft's certified type design are:

(a) helmets

(b) eye and face protection

(c) anti-G suits

(d) carriers and ensemble integration

(e) hoisting equipment

(f) out of seat restraint systems

(g) ballistic protection

(h) thermal/immersion protection

(i) underwater emergency breathing

(j) hearing protection

(k) night vision systems (equipment design requirements only)

(l) CBRN protection (equipment/clothing design requirements only).

EXEMPTIONS

2.15. **Flying Clothing.** ALSE has a maintenance policy and requires regular servicing by qualified personnel. Hence flying clothing is not considered ALSE. For information regarding Flying Clothing, contact the Program Manager – Combat Clothing (position number 00460959)

2.16. **Parachute Systems.** The Standards DoSA-ALSE does not hold a delegation for parachutes. The ADF Parachute School should be contacted in the first instance for the design requirements of parachutes.

2.17. **Pyrotechnics.** ALSE Ensembles or survival kits routinely contain pyrotechnic signalling devices. Explosive Materiel Branch (EMB) are the SMEs for this type of equipment. For requirements for pyrotechnic signalling devices refer to the eDEOP101 – Department of Defence Explosives Regulations. For guidance or advice on this topic contact EMB via their group inbox; casglsdembcoordination@dpe.protected.mil.au.

2.18. **Oxygen Systems.** ALSLMU are the SME for oxygen masks, which interface with the aircrew and aircraft oxygen systems, these are covered within this chapter. However, this chapter does not cover aircraft oxygen systems forming part of a particular aircraft design, refer Section 3 Chapter 6 for further guidance.

Superseded

GENERAL CONSIDERATIONS

2.19. ALSLMU is the SME for the scope of ALSE only; aircraft MAOs are responsible for ALSE integration with Defence aircraft. Each Defence aircraft type has been designed to comply with different standards and the integration of ALSE must be undertaken with cognisance of the suite of standards applicable to that type. The following paragraphs provide guidance to MAOs, CAMOs and SPOs on generic considerations for applying the prescribed ALSE design requirements in this chapter, to ensure that the extant aircraft design requirements are not compromised:

(a) **Configuration, Role and operating Environment (CRE).** Changes to a Defence aircraft's CRE can significantly influence the type of ALSE required and the design standards associated with the equipment. The standards prescribed within this chapter need to be applied with caution and tailored to suit the CRE of a particular platform. If any doubt exists the Standards DoSA-ALSE should be consulted for assistance with tailoring the application of standards.

(b) **Crash Protection.** When assessing the suitability of crew-mounted ALSE, evidence of the head and body extremity strike envelopes within the crew stations/cockpits of the aircraft must be sourced. Within these envelopes, the aircraft's design must also identify where suitable energy absorbing padding materials, frangible breakaway panels, smooth contoured surfaces, or ductile materials should or have been used. These intrinsic aircraft design features, if incorporated, provide additional protection to aircrew members in the event of an accident, and may reduce the need to source ALSE designed to further reduce the risk of injury. In cases where a shortfall in the crash protection of a platform is determined, additional ALSE requirements may be defined to treat this shortfall. The ADF aircraft crash protection requirements are prescribed in DASR ARO.40 Aircraft Crash Protection. This requires at AMC ARO.40.A.3.c that ALSE carried by personnel should be risk assessed and treated in the context of Crash Protection (For example: is ALSE adequately restrained under crash loads to prevent it coming lose and injuring aircraft occupants? Does the ALSE impact crashworthy seat restraint systems?). The ADF Contemporary Crash Protection Design Requirements are detailed at Section 2 Chapter 6.

(c) **Evacuation.** The addition/modification of ALSE can influence the ability of survivors to effectively evacuate aircraft and survive post-evacuation. Therefore, when assessing changes to any ALSE ensemble, the effect on both evacuation and survival must be considered. Generally an aircraft's type certification basis will include requirements for emergency evacuation (e.g. FAR25.803) and ALSE should not impact compliance with these requirements.

ALSE DESIGN REQUIREMENTS

2.20. Design requirements for ALSE comprise of Standards and ADF unique requirements. ALSE standards rarely match the context of the proposed design and, consequently, simple compliance with a standard may not be adequate for Defence's intended use of the ALSE. The Defence aircraft's CRE must therefore be considered when evaluating ALSE for suitability and acceptability, as discussed at paragraph 2.19a. The following sections provide for General Requirements and considerations applicable to ALSE as well as Integration Requirements for the integration of ALSE components to form an ALSE Ensemble and the integration of an ALSE ensemble to an aircraft. All ALSE should be assessed against the General and Integration Requirements as well as the specific domain and any other requirements that are relevant from other domains.

Superseded

2.21. In the use of ALSE for Defence service the following requirements and considerations are to be applied:

2.22. **Design Requirement (Essential).** *The maintenance inspection requirements and serviceability limits must be identified and published in relevant maintenance instructions*

2.23. **Key Consideration.** The design and fit of ALSE should consider and meet the needs of the anthropometric measurements of all aviators including females.

Material Properties

2.24. **Design Requirement (Essential).** *Materials used in Carriers or other ensemble components used to secure ALSE in the ensemble (i.e. pouches and straps) must be made of UV light resistant materials. This requirement shall be verified by test of residual strength of materials following accelerated exposure to UV light equivalent to its expected service life.*

(a) **Guidance Material.** Load bearing harness standards have particular requirements related to UV light resistance for primary load bearing webbing, refer to the related Hoisting Equipment or Out of Seat Restraint Systems domains for details. For other materials engage ALSLMU for guidance on the use of an appropriate standard for UV exposure testing.

2.25. **Design Requirement (Essential)**. *ALSE that is worn or stowed within an aircraft must be at least flame resistant.*

(a) **Guidance Material.** Where ALSE components have a similar form to components identified in FAR 25.853 and Appendix F to FAR Part 25 (e.g. ALSE harness or restraint webbing is similar to seat belts and shoulder harnesses) the relevant requirements must be applied. Where components are more similar to aircrew clothing a related standard for flame resistance testing for clothing, such as ISO 15025:2016, may be considered appropriate.

2.26. **Design Requirement (Essential).** All materials used in the manufacture of ALSE must not allow a build-up of static electricity or electrical charge.

(a) **Tailoring Advice.** The 'Material requirements' portion of BS EN 1149-5:2008 - Protective clothing-Electrostatic properties Part 5: Material performance and design requirements (or similar) can be used as guidance for testing if required.

Restraint Requirements

2.27. **Design Requirement (Essential).** *All ALSE components, or their means of restraint (e.g. pouch) to the carrier (or other means of attachment to the wearer) must be of sufficient strength to restrain the component under crashworthiness loads defined in the relevant aircraft(s) type certification basis or derived from the Section 2 Chapter 6 Contemporary Crash Protection Requirements.*

2.28. **Design Requirements (Essential).** *ALSE Ensemble components must remain securely restrained when subject to rotor wash and/or airstream associated with doors open operations.*

(a) **Guidance Material.** It may be suitable to adapt DEF STAN 05-134 Test 19 to apply relevant air blasts equivalent to rotor wash for rotary wing aircraft.

Superseded

2.29. In the production of ALSE designs suitable for Defence service, the equipment must be suitably integrated with the person, the aircraft and the remainder of the aircrew ensemble. ALSLMU are available to provide guidance on the suitability of ALSE and aircrew ensemble integration. The following requirements and considerations are to be applied:

2.30. **Design Requirement (Essential).** *ALSE must be integrated in accordance with DEF STAN 05-134.*

2.31. **Design Requirement (Essential).** *An ALSE Ensemble must be assessed using the test procedures of DEF STAN 05-134 Section 10 as applicable to the aircraft type.*

(a) **Tailoring Advice.** Where an ALSE Ensemble is not intended to be worn for the duration of the flight the assessment of DEF STAN 05-134 para 10.3.1, Test 1: Dressing and Undressing should also be made during flight to ensure the Ensemble can be efficiently donned / doffed during flight.

(b) **Guidance Material.** Other sections of DEF STAN 05-134 are very specific to the UK MoD organisation and should not be applied.

2.32. **Key Consideration.** The ALSE integration testing requirements of DEF STAN 05-134 Issue 1 Paragraph 10 will ensure that the ensemble suitably integrates together and with the aircraft on which it is being used. To ensure a successful outcome it is important that the purpose and assessment criteria of the various testing is understood and applied during the design of the ALSE Ensemble.

2.33. **Key Consideration.** During the assessment of an ALSE Ensemble using the testing program of DEF STAN 05-134 the risk assessment worksheet for Hazardous Manual Tasks from the Workplace Health and Safety (Hazardous Manual Tasks) Code of Practice 2015 should be used to identify any issues where the ALSE Ensemble may contribute to Musculoskeletal Disorders that will need to be managed. This may include identifying changes in design of the ALSE Ensemble to eliminate or mitigate such issues SFARP during its development.

2.34. **Key Consideration.** An ALSE Ensemble should have the ability to adjust the configuration to suit the operational role and environment to balance the hazards associated with weight and bulk of equipment during wear against the threats that the ALSE provides protection against during or following an emergency landing / ditching or crash.

2.35. **Key Consideration.** An ALSE Ensemble and Carrier design should provide for tactile feel for the identification and operation of securing hardware to allow for access to components that are located out of line of sight or in reduced light / visibility environments.

2.36. **Key Consideration.** Prior to ALSE being introduced to service, it should be assessed on each platform for snagging hazards which may cause the wearer to become trapped inside a sinking or burning aircraft. Assessments should consider emergency egress in any direction to and from an emergency exit, as Rotary Wing Aircraft in particular have a tendency to roll inverted following a ditching.

Superseded

DOMAIN REQUIREMENTS

2.37. The following Sections present the prescribed ALSE requirements and Standards for each ALSE Domain.

HEAD PROTECTION DOMAINS

Helmets Domain

2.38. A helmet is usually a safety device to protect the head of aircrew and passengers from dangerous impacts during a potentially survivable crash. The helmet's function is achieved with a combination of materials to both prevent penetration and absorb energy in such a way as to reduce damage from excessive accelerations caused by impacts to the head. Helmets also lower the risk of head injury during ejection and provide protection against windblast, rotor wash and debris in an aircraft during operations. Helmets may also be used as a platform for hearing protection, eye protection, communications equipment and other mission equipment.

2.39. The use of helmets and the selection of impact protection requirements must be done holistically within the aircraft design. Elimination or minimisation of risks so far as is reasonably practicable (SFARP) by means other than a helmet, should be assessed prior to selecting a helmet for use. For example, modification may be possible to the aircraft to prevent head injuries. It should be noted that many fixed and rotary wing aircraft are certified for use without helmets so mission function may be the driving factor in helmet selection.

2.40. A requirement to wear an aviation helmet might conflict with requirements to wear head protection to address different hazards, such as a ground combat ballistic helmet. In such circumstances a decision regarding the wearing of a helmet compliant with the requirements in this chapter, or an alternate helmet, must be guided by the principle of eliminating or otherwise minimising hazards to personnel SFARP.

2.41. The decision to use helmets and the selection of a helmet must be steered by the crash protection properties of the aircraft in which it is employed and the nature of the duties of the wearer. There will always be a trade off with the desirable properties of a helmet. For example, a lightweight helmet is always desired to reduce musculoskeletal (MSK) injuries; however, increased impact or ballistic protection will be accompanied by an increase in helmet mass.

Note

2.42. The requirements in this chapter are applicable to crash helmets only. Currently there are no applicable standards for lower impact head protection. Guidance material for lower impact head protection are mentioned at the end of this document. As of 2021, ALSLMU are investigating requirements of aviation helmets for use as a multi-fit passenger type helmet in collaboration with 5 eye nation's. For additional information contact the ALSLMU head protection SME.

2.43. The helmet section is to be read in conjunction with the General requirements, eye and face protection and Sensory domain's (Hearing protection).

Superseded

2.44. **Design Requirement (Essential).** *The helmet must meet the requirements of AS/NZS 1698:2006, or ECE 22.06.*

2.45. **Tailoring advice.** Amend requirement 5.8 (visors) to read 'eye and face protection section of this DASDRM chapter' in lieu of 'AS 1609'.

2.46. **Tailoring advice.** Requirement 7.1 (test sequence) solvent conditioning must be carried out.

2.47. **Tailoring advice.** Requirement 7.5 (resistance to penetration) test is only required when deemed necessary by the platform MAO.

2.48. **Tailoring advice.** Requirements 8 and 9 (marking and instructions for use and care) must be tailored in conjunction with the acquisition agency prior to introduction to service through the OEM.

2.49. **Design Requirement (Essential).** *The helmet must limit the peak head-form acceleration to 190G when tested IAW AS/NZS 1698:2006 using a flat anvil impact with the centre of the ear cup.*
2.50. **Design Requirement (Essential)**. *The helmet must limit the average head-form acceleration to 175G when tested IAW AS/NZS 1698:2006 using a flat anvil impact with the centre of the ear cup.*

2.51. **Guidance Material.** The previous two requirements are in addition to the testing in section 7.4 of AS/NZS 1698:2006, however the same methodology should be followed.

2.52. **Design Requirement (Essential) – one handed doffing.** *The fitting and retention system of a helmet must be designed such that a wearer can doff the helmet with one hand*.

2.53. **Design Requirement (Recommended).** *The mass of the helmet should be limited to 2.27 kg (5 lb).*

2.54. **Guidance Material.** Helmet weight is a contributing factor to fatigue and MSK injuries. Excessive weight can also increase neck loading and the impact energy of a head impact in a crash event. Care should be taken not to over specify other helmet attributes such as impact protection. A helmet should be selected to be as light as possible while providing the required level of protection. The target maximum mass includes the visors, sound attenuation and communication equipment, NVG's and any accessory to be mounted to the helmet. Consideration should also be given to the frequency and magnitude of high acceleration flight.

2.55. **Guidance Material.** A helmet which is optimised to protect a wearer from an impact of a magnitude which would be expected to cause a concussion or Mild Traumatic Brain Injury (mTBI) must be selected to protect the user from the higher magnitude of potential impacts. Consideration should be given to the CRE and the potential impacts that the helmet is to protect against. Consideration should be given to the member remaining conscious to survive post-crash events (e.g. smoke, fire, sinking aircraft, enemy action), which may occur some distance from emergency services and rescue.

2.56. **Key Consideration – centre of gravity (CoG).** The centre of gravity of a head and helmet is a more significant factor to aircrew fatigue and in flight performance, as well as being a key contributor to neck and back MSK injuries, than helmet weight. The helmet CoG should be as close to the top of the wearer's spine as possible and should be considered in the context of the aircraft's CRE. For example, the frequency and duration of high G loads or personnel moving around the aft of a helicopter while leaning over.

Superseded

2.57. **Key Consideration – rigid protrusions and accessories.** Helmets with rigid protrusions or mounted accessories can impart an angular acceleration to the head in the case of a head impact, increasing the chance of traumatic brain injuries. A large or oddly shaped helmet can also impede emergency egress. Helmets should be as small and as form fitting to the head as can be achieved whilst fulfilling their function. A helmet with a long radius of gyration can also contribute to neck injury, especially during an ejection. Consideration should also be given to external accessories mounted on a helmet causing a force concentration on the helmet during a crash event, with the increased pressure causing the accessory to penetrate the helmet.

2.58. **Key Consideration – helmet penetration and tearing.** An assessment of the crashworthiness of the aircraft and the role of the aircrew within it should be carried out to determine if there is a risk of helmet penetration or tearing during a survivable crash.

2.59. **Key Consideration – environmental qualification.** The operating environment of the aircraft should be used when considering the environmental qualification of the helmet. Consideration should be given to (but not limited to) temperature, humidity, ultraviolet radiation as well as exposure to fresh and salt water, dust and sand. Exposure to variations in environmental conditions may have a significant bearing on the life expectancy and level of protection the helmet affords. The selected temperature ranges should influence the hot and/or cold soaking requirements during testing, as these temperatures may alter the energy attenuation properties of the helmet materials.

2.60. **Key Consideration – helmet coverage and field of view.** The requirement for protection for the entirety of the head, including the face, should be considered when selecting a helmet. The amount of coverage should be balanced with any restrictions to the field of view, which may result in reduced crew situational awareness and increased workload. Restrictions to the field of view are undesirable.

2.61. **Key Consideration – human thermal performance.** The effect of ambient atmospheric conditions on the person wearing the helmet should be considered. This includes the effect of hot and cold injuries through ambient temperature and wind chill e.g. for example flying with open doors.

2.62. **Key Consideration – mission equipment.** Helmets may require incorporation of other features to enhance mission performance. These features should not degrade the crash protection of the helmet unless a safety case shows that a feature of the helmet that impacts crash protection attributes reduces a more serious risk SFARP. Such mission features include a ‘hear through’ function for communicating with persons not connected to communications system e.g. passengers prior to boarding the aircraft or night vision equipment.

2.63. **Key Consideration – ballistic protection.** Consideration should be given to whether the helmet is required to provide ballistic protection. This requirement should be balanced with the risk of MSK injuries from a heavier armoured helmet.

2.64. **Key Consideration – evaluation of aircrew helmets**. Air Standard ASMG 4041 Evaluation Procedures for Flight Helmets provides information on the type of data that should be collected when evaluating candidate aircrew helmets. This may be of use to acquisition projects.

2.65. **Key Consideration – durability.** A helmet which is used in an environment where it is likely to be subjected to many low velocity impacts (minor head knocks or bumps), such as a mobile aircrew’s helmet used in a platform where the wearer is required to stoop to move around a cabin or cargo, should be sufficiently resistant to these impacts to maintain its impact protection properties and/or reduce the mission capabilities of the helmet e.g. damage visors or accessory mounts.

Superseded

2.66. **Key Consideration – crash Protection.** The crashworthiness and inherent crash protection of the aircraft should be considered when identifying head protection to be used. The intrinsic aircraft design features, if incorporated, provide additional protection to aircrew members in the event of an accident, and may reduce the need to source ALSE designed to further reduce the risk of injury.

Additional Fixed Wing Ejection Seat Requirements

2.67. **Design Requirement (Essential).** *The helmet must be capable of maintaining facial and head protection during the ejection sequence.*

2.68. **Design Requirement (Essential).** *The helmet must be tested with all possible equipment configurations, i.e. all accessories/mounted equipment installed.*

2.69. **Guidance Material.** Air Standard ASMG 4041 Evaluation Procedures for Flight Helmets provides guidance on how to conduct ejection seat windblast testing. The velocity of the windblast should be selected based on the operating envelope of the aircraft. Consideration should be applied to unplanned ejections at abnormal e.g. high velocities, not just the aircraft's certified ejection velocities. Facial protection includes protection from windblast and debris produced during the ejection sequence.

Additional Fixed Wing Non-Ejection Seat Mobile Aircrew Considerations

2.70. **Key Consideration.** Consideration should be given in the helmet design for these aircrew to receive low velocity head impacts caused from moving around the aircraft and cargo while in flight. These aircrew may also experience multi axis impacts during survivable crash sequences due to the crew not always being secured in a crashworthy seat.

Additional Rotary Wing Considerations (all helicopter occupants)

2.71. **Key Consideration.** Consideration should be given in the helmet design for occupants to receive low velocity head impacts caused from moving around the aircraft and cargo while in flight. Occupants may also experience multi axis impacts during survivable crash sequences due to the occupants not always being secured in a crashworthy seat. They may also be required to rapidly escape a sinking helicopter.

Utility style Head Protection

2.72. These helmets are typically designed to protect the wearer from non-crash loads e.g. low velocity impacts with cargo and airframe components, while enabling other mission functions e.g. ability to swim or treat patients. These style helmets may be desired when operational risks and functions outweigh the requirement for crash protection. This assessment should be made when holistically assessing the risks associated with the platform and mission e.g. there may be a mission risk that requires minimisation ahead of a more remote risk of aircraft crash. It should be noted that some aircraft are certified to not require helmets for crash protection. In these cases this style of helmet may be sufficient to eliminate or otherwise minimise other mission related risks SFARP.

2.73. **Key Considerations.** The platform CRE must be considered for the application of the passenger helmet to be used. For example, a safety helmet chosen for operations on rotary wing 'down the

Superseded

wire' may be made to a higher specification than a Kevlar/bump style helmet used on fixed wing transportation flights.

2.74. **Guidance Material.** Children may be required to fly on board during Defence assistance to the civil community tasking or 'family day' tasking. Head protection sizes should accommodate children.

Eye and Face Protection Domain

2.75. **General Eye Protection.** Eye and Face Protection provides aircrew with protection from windblast, high light intensity, UV, spall resulting from canopy or windscreen failure, ballistic / fragmentation threats, and dust and debris from rotor or jet wash. The following requirements have been identified as general requirements which are to be applied to all eye and face protection equipment as applicable.

2.76. **Design Requirement (Essential).** *AIR STD ASMG 4079 "The Optical And Material Requirements for Aircrew Helmet Visors" must be met for all visor systems*

2.77. **Design Requirement (Essential).** AIR STD 61/113/14A "The Optical And Material Requirements for Aircrew Plano Sunglasses" must be met for all glasses.

2.78. **Guidance Material.** Spectral transmittance requirements may be difficult to meet, particularly in untinted lenses. Lenses must meet the target values as closely as possible to minimise the chance of eye damage in the long term.

2.79. **Guidance Material.** Impact resistance requirements for "Extra High Impact Resistance" protection contained in AS/NZS AS/NZS 1337.1:2010 may be used in lieu of the requirements outlined in the AIR STDs.

2.80. **Design Requirement (Essential)** *Section 3 of AS/NZS 1337.1:2010 including Amendments 1 and 2, relating to assembled eye and face protectors must be applied to all eye and face protectors.*

(a) **Guidance material.** Special performance requirements as per section 3.3 are to be applied as required dependent on the use case of the protector in question.

(b) **Guidance material.** Where requirements are included in both AS/NZS 1337.1:2010 and the applicable AIR STD, the more stringent of the two must be applied.

2.81. **Key Considerations** The following considerations should be taken into account when assessing any eye and face protection equipment.

(a) Applicable considerations from AS/NZS 1336:2014 should be applied. Particularly advice relating to the management of fogging and perspiration

(b) Various shades of tint are available for both visors and sunglasses, appropriate levels should be assessed where possible in order to maximise user comfort and visibility.

(c) Dual visor systems should be easily switched between a clear and tinted visor with one hand in order to manage changing conditions.

2.82. **Laser Protection.** Laser energy is highly focussed and designed to traverse long distances, and is therefore potentially hazardous to the human eye; more so when emitted at a wavelength invisible to the eye, rendering the eye unable to react normally. Laser protection should be tailored to the application and expected laser threats. Threats range from dazzling through to permanent damage of

Superseded

the eye. The method of eye protection chosen against laser light should not degrade or impact upon the function of other eye related systems therefore all general requirements must be met.

2.83. **Design Requirement (Essential).** *Laser eye protection must limit exposure to known threats to within the Maximum Permitted Exposure limits defined in AS 2211.9:2002 (R2014) for wavelengths between 300nm and 3000nm.*

2.84. **Design Requirement (Recommended).** *Requirements 3.1 through 3.3 of AS 1337.4:2011 should be applied to the maximum possible extent.*

2.85. **Key Considerations.** The following considerations should be taken into account when assessing laser eye protection

(a) Section 6 of AS/NZS 1336:2014 outlines considerations that must be made in order to minimise the risk of laser radiation

(b) Laser protection will generally reduce visible light for the wearer, this may be an issue particularly at night.

(c) Filters designed for protection against laser threats are generally designed in such a way that they only cater to a very narrow selection of wavelengths. These must be selected based on risk analysis of known and probable threats.

2.86. **Face Protection.** Protection for the lower face is also available in the form of a shield that reduces wind on the face and provides impact protection.

2.87. **Design Requirement (Essential).** *The requirements pertaining to "Extra High Impact Resistance" protection contained in AS/NZS 1337.1:2010 must be applied as a minimum to any face shield.*

2.88. **Key Considerations.** The following considerations should be taken into account when assessing face protection:

(a) Face protection should not allow breathing gasses to escape in a manner that causes fogging of any visor or spectacles that are used in conjunction with the face protection.

(b) Face protection must be rapidly removable to allow the use of underwater emergency breathing devices and other safety systems that cover the mouth and face.

Anti-G Suits

2.89. Anti-G Suits are designed to counteract the effects of acceleration on aircrew, which can impact on their survival or ability to perform tasks. The pressurised abdominal and leg bladders aim to support an adequate blood supply to the upper body and head when a person is subject to positive G forces. This counteracts the pooling of the blood from the head and chest into the lower part of the body under high positive G forces which will help preserve circulation, visual acuity and mental alertness until level flight is resumed.

2.90. Some contemporary Anti-G suits incorporate features to assist the wearer in breathing high pressure gasses or to provide protection against exposure to very low air pressure environments. Such features are beyond the scope of this section. Advice should be sought from ALSLMU prior to using such equipment on ADF aircraft.

Superseded

2.91. **Design Requirement (Recommended).** *Anti-G suits should be subjected to scheduled fit checks on the assigned wearer, by a suitably qualified person.*

2.92. **Design Requirements (Recommended).** *Anti-G suits should be subjected to pre-flight functional and/or leak checks.*

(a) **Guidance Material.** The preferred method of compliance is to conduct a functional check which can be conducted in an aircraft with the wearer of the suit strapped in such that the suit is integrated to the aircraft. If a pre-flight check in a carrying aircraft is not feasible, then a functional and/or leak check should be conducted when the suit is donned.

2.93. **Key Considerations.** The following key considerations should be made when introducing Anti-G suits to ADF service:

(a) An Anti-G suit with greater coverage of the wearer will tend to offer superior protection against G forces, whilst an Anti-G suit with a larger total bladder volume will inflate more slowly. High coverage and rapid inflation are both desirable properties of an Anti-G. These characteristics should be considered and optimised for the intended configuration, role and environment of the user.

(b) The use of 'pull away' quick release connectors for the interface between an aircraft and an Anti-G suit are considered desirable for the purpose of rapid emergency egress, but an inadvertent disconnection in flight could contribute to a G Induced Loss of Consciousness (G-LOC) event. The selection of an interface connector should consider both emergency egress and the security of the connection.

(c) The wearer of an Anti-G suit should conduct activities such as the Anti-G Straining Manoeuvre (AGSM) to resist the effects of G forces. Different Anti-G suit designs afford varying levels of protection against G forces and caution should be applied when transitioning from a design with a high level of protection to one with lesser protection. The wearers AGSM activities should be matched to the assistance provided by the suit. Effective conduct of an AGSM with a particular Anti-G suit design requires substantial practice and conditioning. For this reason, care should be taken when considering any finding of equivalence between the function and performance level of different Anti-G suit designs.

(d) The failure of an Anti-G suit could contribute to a G Induced Loss of Consciousness (G-LOC) event. The reliability of an Anti-G suit should be considered in terms of the suit making up part of the carrying aircraft's Anti-G system.

Life Preservers

2.94. Life preservers provide individuals with floatation support whilst in the water following a survivable aircraft ditching. They have inflatable buoyancy chambers to minimise bulk during normal operations and may incorporate survival aid stowage as part of the assembly. The type of life preserver used is highly dependent on the CRE of the host aircraft and the personnel that it is intended for including aircrew and passengers (combat/noncombat).

Constant wear life preservers

2.95. **Design Requirement (Essential).** *Constant wear life preservers must comply with the requirements of DEF(AUST) 9202.*

Superseded

(a) **Tailoring advice.** Replace the second sentence of paragraph 2i of AIR STD ASM 4065 Ed1v3 as follows: “The life preserver must accommodate the full anthropometric range of the user population wearing standard flight clothing and applicable personal survival equipment”.

Non-constant wear life preservers

2.96. **Design Requirement (Essential).** *Non-constant wear life preservers must comply with the requirements of TSO-C13g.*

General life preserver requirements applicable to all life preservers

2.97. **Design Requirement (Essential).** *Life Preservers for Rotary Wing aircraft applications must only use manually activated inflation devices and be inflated by the wearer following egress from the aircraft so that the buoyancy of an inflated life preserver does not trap them within a sinking aircraft.*

2.98. **Design Requirement (Essential).** *Life Preservers for ejection seat aircraft must use automatically activated inflation devices that automatically inflate once in the water to account for the possibility of unconsciousness following the ejection sequence.*

2.99. **Design Requirement (Essential).** *The life preserver must be fitted with a pea-less whistle unless the life preserver is for an infant. The whistle must be secured by a cord to the life preserver.*

2.100. **Design Requirement (Essential).** *The life preserver in the inflated mode must not hamper ingress to single or multi-seat life rafts.*

2.101. **Design Requirement (Essential).** *All inflatable life preservers must use dual chamber buoyancy systems to provide redundancy for damage or failure of one chamber.*

2.102. **Design Requirement (Recommended).** *The buoyancy afforded by a life preserver should consider the additional equipment weight carried by the wearer (e.g. fully loaded combat passengers).*

2.103. **Design Requirement (Recommended).** *Life preservers should be protected against inadvertent inflation.*

2.104. **Design Requirement (Recommended).** *A life line and toggle should be fitted to the life preserver. Where fitted, the life line must have a minimum breaking strain of 45 kg and be approximately 1 metre in length. The life line and toggle are to be stowed within easy reach of the wearer.*

(a) **Guidance Material.** This requirement provides a means for survivors to tether themselves together if they are in the water and do not have a life raft (e.g. survivors could not remove the life raft from a sinking helicopter).

2.105. **Design Requirement (Recommended).** The life preserver should be compatible with helicopter rescue hoisting operations.

2.106. **Key Consideration.** DASDRM Section 2 Chapter 6 Annex A should be referenced for guidance on life preserver stowage on aircraft and quantity of life preservers required.

2.107. **Key Consideration.** The requirement for infant and child life preservers should be assessed during the procurement process based on the expected role of the aircraft.

Superseded

2.108. **Key Consideration.** The MAO should consider if subsurface buoyancy is required for the life preserver application.

2.109. **Key Consideration.** Civilian passengers may not be fluent in English language and/or may not be able to read English which may cause difficulties for the passengers accessing and using the life preserver.

Life Rafts

2.110. Life Rafts provide for survivability of one or more people after an aircraft evacuation over water, or dropping from an aircraft to survivors in the water during Search and Rescue operation. Once boarded, life rafts increase survivability by isolating survivors from the water and providing shelter from the environment. Life raft designs must cater for Defence's survivability needs ranging from hours to days of life support, incorporating communication and rescue aids, rations and water treatment systems where warranted.

2.111. Life Rafts and their components must comply with ALSE General Requirements as well as the following standards as relevant to the specific Defence aircraft installation, considering recommended requirements and guidance material listed.

Life Raft Equipment

2.112. **Design Requirement (Recommended).** The following life raft specific survival aids are strongly recommended as inclusions with all life rafts.

(a) at least one buoyant bailer.

(b) a pair of buoyant paddles (note: not appropriate for larger life rafts).

(c) an efficient radar reflector or a radar transponder.

(d) anti-nausea medication and sick bags for all on board the life raft.

Multi-seat life rafts

2.113. **Design Requirement (Essential).** *Life rafts must comply with TSO-C70b.*

2.114. **Design Requirement (Recommended).** *Life rafts should consider fitment/use of the following recommended features:*

(a) *Life Raft lights should have batteries (or battery and Light units) that are replaceable without the use of adhesives.*

(b) *Attachments should be provided to keep the entrance covers open (the life raft should be packed in this position if a self-erecting canopy is fitted).*

(c) *The total seating space should be insulated by an inflatable floor. When a removable mattress type is supplied, tie down points to attach the mattress to the life raft floor should be added.*

(d) *The floor should be fitted with Inflate/Deflate valves that are compatible with the Life Raft Topping-up valves and the Life Raft Hand pump. When a mattress type inflatable floor is*

Superseded

supplied, the upper side centre of the floor (when installed) should be stencilled with 40 mm high lettering 'INFLATABLE FLOOR'.

(e) *The life raft should provide sufficient air for the occupants at all times, even with the entrances closed.*

(f) *The life raft should contain a viewing port.*

(g) *Where the life raft has multiple entrances, best practice is to have at least one entrance provided with a 'boarding ramp', with other entrances using a 'boarding ladder' style boarding aid. The boarding ramp should not cause life raft deflation if it becomes damaged and the lowest step of the boarding ladder should be .4 m below the life rafts waterline.*

(h) *Have an automatically deploying sea anchor or a labelled reminder for the occupant to deploy the sea anchor.*

2.115. **Design Requirement (Recommended).** *Life rafts which can be externally mounted and deployed remotely should be used in preference to internally installed life rafts which require physical effort to deploy. Internally installed life rafts should have unobstructed access from the inside of the aircraft and that of the ditched position.*

(a) **Guidance Material.** Life rafts should be deployable from three locations being in reach of the flight crew, occupants of the passenger cabin and survivors in the water with the aircraft floating in the ditched/capsized position.

2.116. **Design Requirement (Recommended).** *Life rafts should be equipped with two retaining lines to be used for securing the life raft to the aircraft, one short line and one long.*

(a) **Guidance Material.** A short line holding the life raft close enough for occupants to enter the life raft directly without entering the water which is then cut leaving the life raft attached to the aircraft by the longer retaining line which should allow the life raft to float at a safe distance away from the aircraft.

2.117. **Guidance Material.** Aircraft should have a minimum of two life rafts with sufficient overload capacity to account for the loss of the largest life raft.

2.118. **Guidance Material.** Consideration should be given to whether additional capacity within the life rafts is required to account for operationally kitted aircrew.

2.119. **Guidance Material.** Weight and space permitting, consideration should be given to increasing the puncture resistance of the life raft if it is located in close proximity to an area of the aircraft which is likely to have jagged edges following a water landing/ditching.

2.120. **Guidance Material.** Consideration should be given to whether there are entanglement possibilities from lines/boarding ladders which could trap a person while righting the life raft during a new life rafts introduction to service.

Multi-seat life raft compressed cylinders

2.121. **Design Requirement (Essential).** *Compressed cylinders which have been discharged, immersed in water, visually appear corroded, out of limits or damaged and will (or have) exceeded the 5 years since hydrostatic test must be returned for inspection, testing and refilling. Facilities*

Superseded

conducting the work must satisfy the requirements of AS 2337.1 for Gas Cylinder Test Stations, Part 1: General Requirements, Inspection and Tests–Gas Cylinders.

2.122. **Design Requirement (Essential).** *Recharging and reconditioning, internal and external inspection and testing of Inflation System Compressed Cylinders must comply with AS 2337.1.*

2.123. **Design Requirement (Essential).** *Each cylinder must be charged with the required weight of CO2 and N2 as applicable by the type of cylinder, to within the limits as specified by the manufacturer. CO2 used must conform to BB–C–101, Grade B. Where additional pressure to expel CO2 at lower temperatures is required, cylinders must have added Dry N2 conforming to A–A–59503, Type I, Grade B, Class 1.*

2.124. **Design Requirement (Recommended).** *Painting of the compressed cylinder should be done in accordance with MIL-STD-1411A. The threaded portion of the neck of the cylinder should not be painted.*

2.125. **Design Requirement (Recommended).** *Cylinders fitted with syphon tubes should have the type of syphon tube clearly stencilled in 12 mm lettering, in Black Cellulose Lacquer conforming to A–A–3165, longitudinally on the body of the cylinder, as* applicable.
Single seat life rafts

2.126. **Design Requirement (Essential).** *Life rafts must comply with DEF(AUST) 9203.*

2.127. **Design Requirement (Essential).** *Inflation compressed cylinders must comply with MIL-PRF-25369D(1).*

LOAD CARRIAGE AND RESTRAINT DOMAINS

Carriers

2.128. Carriers form the basis of an ALSE Ensemble in that they provide a platform to which various ALSE can be attached. Carriers take two forms a vest (for non-load bearing applications) or harness (for load bearing applications for restraint / hoisting). Selection of a carrier requires consideration of the requirements of the wider ensemble and the need for restraint/ hoisting capability.

2.129. Design Requirement (Essential). *A carrier must be designed to restrain the load of any ALSE component or combination of components intended to be attached to it simultaneously under relevant crashworthiness loads defined in the relevant aircraft(s) type certification basis or derived from the Section 2 Chapter 6 Contemporary Crash Protection Requirements.*

(a) **Guidance Material.** Where a Harness is required any relevant Out of Seat Restraint or Hoisting Equipment requirements should be applied from the respective Domains.

Hoisting Equipment

2.130. Hoisting Equipment is considered as any equipment that is connected to a rotary wing aircraft's hoist for the purposes of deploying and recovering personnel to/from the aircraft during flight. This ALSE domain includes but is not limited to harnesses, strops, baskets, seats and stretchers. This ALSE domain does not include the aircraft hoist, cable or hoist hook.

2.131. **Design Requirement (Essential).** *Harnesses must meet the requirements of ATSO-C1003 or TSO-C167 as tailored below:*

Superseded

(a) Para 3 (1) of ATSO-C1003 should refer to AS/NZS 1891.1:2020 and use the applicable sections for Full Body Harness.

(b) Para 3 (3) of ATSO-C1003 shall refer to Section 2.2.3 of AS/NZS 1891.1:2020 instead of 4.2.3 of AS/NZS 1891.1:1995.

(c) Para 3 (4) of ATSO-C1003 shall refer to Section 5.1 paragraphs c, f, g, h of AS/NZS 1891.1:2020 instead of 5.1 of AS/NZS 1891.1:1995.

(d) Para 3 (5) of ATSO-C1003 provides dispensation from permanently marking harnesses with a maximum allowable free fall as required by AS/NZS 1891.1:1995. This dispensation still applies to harnesses; however, AS/NZS 1891:2020 does not include this requirement.

(e) Para 3 (6) of ATSO-C1003 refers to Static Tests for Lanyards. These tests are not applicable to harnesses.

(f) Dynamic testing of harnesses must be performed as per AS/NZS 1891.1:2007 Appendix D.

2.132. **Guidance Material.** ATSO-C1003 is no longer a stand-alone document. It was moved to CASR Part 21 Manual of Standards (MOS). Latest revision of MOS is dated 30 Nov 17.

2.133. **Design Requirement (Essential)**. *Rescue Strops must meet the requirements of ATSO-C1003 as tailored below:*

(a) In reference to Para 3 (2) of ATSO-C1003, use the applicable sections in the AS/NZS 1891.1:1995 standard for "Retrieval Strap" testing. General, webbing and attachment hardware requirements used in the Strop shall be as required for harnesses in AS/NZS 1891.1:2020.

(b) Para 3 (3) of ATSO-C1003 shall refer to Section 2.2.3 of AS/NZS 1891.1:2020 instead of 4.2.3 of AS/NZS 1891.1:1995.

(c) Para 3 (4) of ATSO-C1003 shall refer to Section 5.1 paragraphs c, f, g, h of AS/NZS 1891.1:2020 instead of 5.1 of AS/NZS 1891.1: 1995.

(d) Para 3 (5) of ATSO-C1003 shall refer to Section 5.2 of AS/NZS 1891.1:2020 instead of 5.2 of AS/NZS 1891.1:1995.

(e) Para 3 (6) of ATSO-C1003 refers to Static Tests for Lanyards. These tests are not applicable to rescue strops.

2.134. **Guidance Material.** ATSO-C1003 is no longer a stand-alone document. It was moved to CASR Part 21 Manual of Standards (MOS). Latest revision of MOS is dated 30 Nov 2017.

2.135. **Design Requirement (Essential).** *Hoisting equipment other than rescue harness/strops must meet the applicable requirements of NFPA 1983:2017 and ATSO-C1003 Paragraphs 3(8) and 3(9).*

2.136. **Design Requirement (Essential).** *A Rescue Strop must be buoyant for maritime operations.*

2.137. **Design Requirement (Recommended).** *The Rescue Strop should be a bright colour to enhance conspicuity during rescue.*

2.138. **Tailoring Advice.** This requirement is deemed recommended since there may be cases where a strop is required for Combat Search and Rescue (CSAR) operations where bright colours are not suitable.

Superseded

2.139. **Design Requirement (Recommended).** *Where likely to be used for hoisting of hypothermic patients a Rescue Strop should incorporate a Hypothermia strap (a secondary strap placed under the knees of the hoistee for a semi-recumbent position).*

2.140. The current version of FAR 29.865 is Amendment 29-43. Advisory Circular AC29-2C contains detailed guidance at AC29-865B. Within FAR 29.865 Harnesses, Rescue Strops (along with other Personnel carrying devices) are collectively referred to as Personnel Carrying Device Systems (PCDS). The following sections are considered applicable to PCDS:

(a) FAR 29.865(a) The requirement for PCDS to be shown by analysis, test or both to withstand limit static load to a load factor of 3.5 or some lower factor not less than 2.5. AC29.865B provides guidance at paragraph d.(6) and in particular d.(6)(ii)(B) for Human External Cargo. Sub-Para (1) provides for a static analysis to show compliance if a safety factor of 3.0 is applied. Sub-Para (2) identifies use of a conservative load factor of 3.5g or substantiated lower factor not less than 2.5g and Sub-Para (3) identifies the use of a 101kg person as the minimum weight however a note indicates additional equipment weight should be included. In the ADF context it is not uncommon for Aircrewmen with equipment and wet to weigh 150kg. Using these values gives a static load of 150 kg x 9.81 m/s2 x 3.0 x 3.5 = 15.5kN. Given that it is not expected that the helicopter would intentionally operate anywhere near the conservative 3.5g load factor during hoisting operations it is calculated that a load factor of 3.39 (equating to 15kN) would suffice. It is therefore considered that the static load testing of the Harness or Rescue Strop to AS/NZS1891.1 requirement of 15kN will satisfy this requirement.

(b) FAR 29.865(c) (2), these requirements are considered to be satisfied by a Harness or Rescue Strop that meets the tailored requirements of ATSO-C1003 or TSO-C167.

(c) FAR 29.865(c)(3), these requirements for placards/markings for operating, ingress and egress instructions are likely to have been met by requirements of either ATSO-C1003 and AS 1891.1:2007 or TSO-C167 and its reference standards.

(d) FAR 29.865(f), this requirement is for fatigue evaluation in accordance with FAR29.571 to be applied to the PCDS. Guidance at AC29.865B paragraph d.(6)(vi)(B) indicates analysing the PCDS component by component to determine fatigue critical components to be subject to analysis or test to determine fatigue life limits. As it is difficult to analyse the fatigue response of webbing and material type harnesses and strops one approach considered suitable by the Standards DoSA-ALSE would be to conduct cycle testing of the entire PCDS system based on the critical load factors (excluding the safety factor used for ultimate load) and make a determination of the number of hoisting cycles likely to be experienced by the PCDS during its life. Using a weight of 150kg and conservative load factor of 3.5g the fatigue cycle load to be used would be 150kg x 9.81 m/s2 x 3.5) = 5150N. Generally Harnesses and Rescue Strops are have a service life of 10 years (unless otherwise substantiated) so using this and the number of hoisting cycles the equipment is expected to be used (under load) a number of cycles can be determined for testing.

2.141. **Key Considerations.** The following key considerations should be made when introducing hoisting equipment:

(a) Rescue Strops are designed for ease of donning whilst in the water but do not provide the safest option for restraint during hoisting. Strops require the hoistee to hold their arms down to maintain restraint. It is possible if the arms are lifted that the hoistee may fall from the restraint which is known to have occurred in the event of a hoistee becoming unconscious

Superseded

(refer ATSB Aviation Occurrence Investigation Report AO-2013-136). Prior to a Rescue Strop being used the following considerations should be made:

1. whether life is at imminent risk
2. the state of the person to be winched, particularly whether the winchee will remain conscious and coherent during the winch process
3. the potential for the person to remain compliant with winching brief
4. alternative methods and devices to recover the person
5. whether the risk of falling from the device would not result in further serious injury or death.

(b) Rescue Strop design or operating procedures should prevent a survivor from slipping through the rescue strop during winching. It should be considered if any additional design features for a Rescue Strop such as arm straps (to help hold arms down over the strop), crotch straps, self-securing systems and anti-slip materials to prevent slipping from the Rescue Strop are suitable for the application's Configuration, Role and Environment.

(c) Use of a Rescue Strop with hypothermic strap is considered a safer option compared to a single under arm strop, especially with heavier winchee's or those who may have pre-existing heart-related medical conditions, or suffering hypothermia.

(d) Rescue Strops should be chosen as a 'last resort', in favour of using extraction devices which will not allow the winchee to fall out. Additionally, best practice is using strops only over water.

(e) A Rescue Strop should be sufficiently long to fit around the chest of a survivor carrying full aircrew clothing and accoutrements (additional equipment) after immersion in water.

(f) The option of an emergency quick release device fitted between the harness and hoist hook should be considered as part of a safety argument that supports the determination that associated risks have been eliminated or otherwise minimised SFARP. If a quick release is to be used the ATSO-C1003 paragraph 3(7) requirements are considered essential design requirements.

(g) The strop or harness should be adequately comfortable and suitable for the wearer as to not injure the wearer during a lift.

(h) The weight of a rescue strop should be selected to limit flail of an empty strop when attached to a hoist hook and hoisted in the aircraft's rotor wash and this should be assessed by flight test. The weight will need to be balanced with buoyancy of the strop to ensure it floats on the water for ease of use during a water hoisting operation. Alternatively the use of a separate weight attached to the hoist hook to weight the cable and limit movement of an empty strop in the rotor wash could be considered.

(i) Where a Harness is to also be used for restraint whilst out of seat within an aircraft the requirements prescribed for Out of Seat Restraint Systems will also need to be considered and applied to the design.

(j) To prevent a rescue device from spinning, the use of an integrated tagline or litter drag chute should be used to assist in stabilising the equipment and patients during the hoist.

Superseded

(k) Selection of hoisting equipment should be considered in the context of an SFARP solution for the application, configuration, role and environment.

Out of Seat Restraint Systems

2.142. A fall restraint system consist of an anchor point, connectors, full body harness and may include a lanyard, lifeline, or suitable combinations of these. The entire system must be capable of withstanding the impact forces involved in stopping or arresting a fall. When operating out of seat a restraint strap does not provide crashworthy restraint and personnel will be subject to flailing within the extent of the restraint length. When not operationally required to be out of a seat personnel should return to a seat restraint as required by DASR ORO.70(b).

2.143. Restraint systems shall primarily be designed to keep personnel within the designated safe bounds of the aircraft at all times. There may be particular cases however where personnel need a length of restraint to achieve a required positioning where the restraint length could place the personnel at a fall risk position. (For example a helicopter Aircrewman conducting clearances by lying on their stomach to look out the door and underneath an aircraft. In this example when moving from lying to standing position the restraint length could allow the standing Aircrewman to exit the door).

2.144. **Design Requirement (Essential).** *Out of Seat Restraint systems must meet the requirements of the following standards:*

(a) *ATSO-C1001, Dispatcher's Restraint Strap. With the following tailoring:*

1. *Para 3(1) should read: Subject to subclauses (2) to (6), the dispatchers restraint strap must meet the requirements mentioned in AS/NZS 1891.1:2007 relating to lanyards*
2. *Para 3(2) should refer to clause 2.2.1 of AS/NZS 1891.1:2007 instead of 3.2.4 of AS/NZS 1891.1:1995. It is noted that designs incorporating a three ring disconnect include a small eyelet in the load bearing webbing, this may be accepted so long as strength and wear requirements are met*
3. *Para 3(2)b shall refer to the requirements 4.4.1 of AS/NZS 1891.1:2007, tested in accordance with Appendix G of AS/NZS 1891.1:2007*
4. *Para 3(3) should refer to clause 2.3 of AS/NZS 1891.1:2007*
5. *Para 3(6) should refer to the test at Appendix G of AS/NZS 1891.1:2007 instead of Appendix D of AS/NZS 1891.1:1995*
6. *Para 6 should refer to AS/NZS 1891.1:2007 instead of AS/NZS 1891.1:1995*
7. *The ATSO required quick release strap may be optionally omitted for platforms which would not gain significant advantage from the implementation of a quick release device. This is to be determined by the MAO, it is anticipated that all rotorcraft will incorporate a quick release device, whereas large fixed wing aircraft will likely forgo this requirement.*

(b) *AS/NZS 1891.1:2007 Industrial fall-arrest systems and devices – Harnesses and Ancillary Equipment; (As tailored by ATSO-C1001)*

1. *All requirements relating to the use of personal energy absorbers shall also be removed from AS/NZS 1891.1:2007.*

Superseded

2. *The requirements relating to the adjustment of a pole strap found at clause 4.3.2 of AS/NZS 1891.1:2007are deemed as essential, and shall be applied to the lanyard assembly used. The lanyard length must be conveniently adjusted with self-locking connectors that do not cause damage to the lanyard. The release of these connecters must require consecutive deliberate actions in accordance with clause 5.2.1 of AS/NZS 1891.1:2007.*

2.145. **Design Requirement (Recommended).** *All parts of the restraint should be flame resistant in accordance with the general requirements for life support equipment section 2.19 of the DASDRM, therefore the out of seat restraint system should be FAA Part 25.853 compliant.*

2.146. **Key Considerations.** The following key considerations should be made when introducing out of seat restraint equipment:

(a) Platform specific variation will occur. Consideration of the platform specific environment when applying the working at heights code of practice and related standards should be undertaken in each case.

(b) Where working at height standards are used they must be appropriately tailored to an aviation context as aircraft are dynamic platforms and falls can occur in multiple directions and in succession.

(c) A crew member should be able to easily move about the cabin and access all required equipment for their duties, but movement should be restricted beyond the required range of motion to avoid injury under extreme flight conditions or in a crash/hard landing.

(d) Cargo, role equipment and personnel should be appropriately spaced to minimise the likelihood and severity of potential impact should adverse flight conditions be encountered while a user is reliant on out of seat restraints. Consideration should also take place to ensure that adverse reactions such as rubbing and snagging on obstacles so as to avoid minor injuries to personnel or damage to the restraint system. Additionally users operating out of seat should be aware of their surroundings and should have the ability to secure themselves by using hand holds or other means in the event of unexpected turbulence being encountered.

(e) Crew should be able to adjust their lanyards quickly and efficiently, this will assure that they will adjust their lanyards constantly and keep them correctly set as they move about the airframe and conduct varying roles. These mechanisms should not be prone to inadvertent length adjustment. The restraint system should be designed in such a way that it prevents a user from gaining excessive momentum in the event the aircraft accelerates rapidly. This must be balanced with the need to move about the cabin.

(f) As recommended by CASA Airworthiness bulletin 25-007, Restraint straps and harnesses should remain connected to an approved hard point at all times during flight. The use of hard points that are located at height either on a wall or overhead is preferred over the use of a floor based point.

(g) As recommended by the Canada National Defence Airworthiness Design Standards Manual more stringent civilian type “full body’ harnesses incorporating leg and shoulder straps should be used wherever operationally possible as opposed to belt or lower body harnesses.

Superseded

2.147. Aircrew ballistic protection includes protection of crewmembers from weapons such as firearm projectiles, fragmentation, shotgun pellets and sharp edges such as knives and spears. This protection is provided through ballistic armour worn by the crewmember. While the Soldier Modernisation SPO (SMSPO) provides guidance on ballistic protection standards, ALSLMU provides guidance specifically relating to the integration of ballistic protection ALSE within Defence aircraft.

2.148. **Design Requirement (Essential).** *If the ballistic protection ALSE design relies upon rapid removal to assist emergency egress, mitigate negative buoyancy in water, or for Helicopter Under Water Escape (HUET), the rapid removal mechanism must be capable of being activated with one hand.*

2.149. **Design Requirement (Essential).** *The material used for the outer layer of a ballistic protection ALSE garment must comply with the 'Material requirements' portion of BS EN 1149-5:2008 - Protective clothing - Electrostatic properties Part 5: Material performance and design requirements. Pre-test conditioning of the test specimen must be conducted by cleaning the specimen five times in accordance with the manufacturer's cleaning instructions.*

(a) **Tailoring Advice.** The purpose of this design requirement is to ensure that ballistic protection ALSE does not pose a hazard in an aviation environment due to electrical arcing caused by static electricity. An alternate standard may be used if it can be shown to prevent the ballistic protection ALSE from posing a hazard due to static electricity build up or discharge. ALSLMU advice must be sought prior to use of an alternate standard.

2.150. **Key Considerations.** The following key considerations apply when introducing ballistic protection ALSE:

(a) Ballistic protection ALSE tends to be heavy, affect the posture of the wearer and restrict the mobility of the wearer. It should therefore be considered to be a hazard to the wearer and only be used for the purpose of mitigating hazards which are more severe than the hazard it poses.

(b) Requirements for the level and type of protection of ballistic protection ALSE should be based upon assessment of an identified threat such as a defined set of weapon systems and engagement ranges. Such a threat assessment should also consider any protection offered by an aircraft's structure. Land Division of the Defence Science and Technology Group can be engaged to assist in the conduct of such threat assessments.

(c) Soldier Modernisation Systems Program Office (SMSPO) should be consulted regarding the effectiveness of any proposed ballistic protection ALSE system.

POST EVACUATION SURVIVAL DOMAINS

Survival Aids

2.151. Survival aids are required to support the four priorities of survival; Protection (from environment, enemy, propagation of injuries etc.), Location (signalling equipment, locator beacons, radios etc.), Water and Food. Survival aids can be carried in aircrew or passenger ALSE ensembles, within life rafts or specific survival aid packs carried separately on an aircraft. The type and quantity of survival aids required will depend on the CRE for a particular aircraft and may vary from operation to operation depending upon the potential survival environment and expected recovery times.

Superseded

2.152. Five survival environments, identified as Sea, Coastal, Arid, Jungle and Extreme Cold, are taught by Combat Survival Training School and addressed in the Professional ADF Aviators Reference Manual (PAARM) Volume 08 Combat Survival. Where necessary, the survival aid requirements are tailored to each of these environments.

2.153. **Limitations.** The following limitations apply to this Survival Aids section:

(a) The requirements of this section may not need to be applied to ADF transport aircraft that operate similarly to an equivalent civil aircraft type. In such cases DASR AMC ORO.70.A 'Compliance Examples' allow the quantity and type of available survival equipment to meet an acceptable civil standard consistent with a similar aircraft type. When not operated similarly to an equivalent civil aircraft type these requirements will need to be applied to ensure survival equipment appropriate to the task or mission is carried.

(b) Life Raft specific equipment such as pumps to inflate rafts, repair kits, patches, bailing buckets, oars/paddles are not considered within this Domain as it is expected that these will be a defined requirement in the design of a life raft and therefore covered in the Life Raft domain.

(c) First Aid is only considered within scope of this Domain where it is provided within an ALSE ensemble or Survival Kit for the purposes of use following an aircraft emergency landing, ditching or crash. First Aid kits supplied in an aircraft for use in a medical emergency during flight are considered out of scope.

2.154. National Aviation Authorities prescribe operational requirements for operators to have a means for determining suitable survival aids are selected for their particular operations and related environments. As such an exact and standard set of Survival Aids is not be prescribed here. Instead the types of survival aids that are considered essential and recommended for various environments are identified to allow systems project/program offices to work with operators to determine a tailored solution for a particular platform CRE.

2.155. This may be achieved with a standard survival aid suite that is applicable to all aspects of the CRE with supplemental survival aid configurations identified for particular environments/operations that are added or removed as required.

2.156. The selection and quantity of survival aids should be appropriate for the period of time anticipated between an emergency landing or ditching and the location and provision of support or rescue of survivors.

2.157. Tailoring of the survival aid solution to particular environments/operations and expected rescue time may assist in minimising the size and weight of survival aids.

2.158. The use of multi-functioning equipment may assist with the minimisation of size and weight of survival aids.

2.159. **Design Requirement.** *For each of the five key survival environments the following table identifies the minimum Essential (E) and Recommended (R) survival aids to be available in some capacity on the platform. Items that must be carried on the person (aircrew) are identified with an asterisk (*) others may only need to be in a survival kit or life raft. This table does not identify the exact type or quantity of the survival aid that is required, this must be determined on a case by case basis for a particular platform and the intended type of operation and environment and be suitably justified as part of a safety argument that supports a determination that associated risks have been*

Superseded

eliminated or otherwise minimised SFARP. There may be a need for multiple configurations for various operational circumstances.

Table 2-1: Required Survival Aids

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Protection					
First Aid					
Wound Dressings (e.g. bandage, gauze, padding, adhesive tape)	E	E	E	E	E
Tourniquet, Non-pneumatic	E*	E*	E*	E*	E*
Gloves, Examination	E	E	E	E	E
Bandage, Gauze, Impregnated (QuikClot)	R	R	R	R	R
Adhesive Bandages	R	R	R	R	R
Alcohol Swabs	R	R	R	R	R
Antiseptic Cream / Betadine	R	R	E	R	R
Sunscreen	E	E	E	E	E
Lip Balm	R	R	R	E	E
Insect Repellent	E	E	E	E	E
Motion Sickness Tablets	E	E			
Anti-Diarrhoea Tablets	R	R	R	R	R
Pain Relief Tablets	R	R	R	R	R
Clothing					
Sun Hat	R	R	R	R	

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Beanie					R
Gloves (cold weather)					R
Mosquito Net	R	R	E	R	
Socks			R		R
Face and neck protection (Scarf)				R	R
Sleeping Bag				R	E
Space Blanket	E	E	E	E	E
Needle and Thread	E	E	E	E	E
Sunglasses	E	R		E	E
Shelter					
Tent / Shelter					R
Fire					
Matchless Fire Set (flint, striker, hexamine & tinder)	E	E	E	E	E
Waterproof Safety Matches	E	E	E	E	E
Tinder (e.g. Cotton Wool)	R	R	R	R	R
High Quality Candle	R	R	R	R	R
Stove and Fuel					E
Location					

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
406MHz Distress Beacon (COSPAS-SARSAT) / CSAR Beacon [a]	E	E	E	E	E
PSAR Radio / CSAR Radio [a]	E*	E*	E*	E*	E*
Light Marker Distress (Strobe light)	E*	E*	E*	E*	E*
Signal Kit, Personnel Distress (Pen Flares)	E*	E*	E*	E*	E*
Signal Distress, Day/Night (Smoke and Flares)	E	E	E	E	E
Whistle (pea-less)	E*	E*	E*	E*	E*
Mirror, Signalling (Heliograph)	E*	E*	E*	E*	E*
Compass Magnetic (suitable to the Hemisphere of operation)	E*	E*	E*	E*	E*
Sea Marker Dye	E*	E*			E*
Torch / Pen Light with batteries	E	E	E	E	E
IR Glint patch	E*[b]	E*[b]	E*[b]	E*[b]	E*[b]
Air Ground Codes	R	E	E	E	E
Water					
Water Purification Tablets [c]	E	E	E	E	E
Plastic Water Bottle / Container	R	R	R	R	R
Water Supply (bagged water)	E	E	E	E	E

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Desalting / Distilling means (Reverse Osmosis Pump)	E	E			
Food					
Emergency Flying Rations	E	E	R	R	E
Fishing Kit	R	R	R		R
General Items					
Pocket knife and pliers / Multi-tool	E*	E*	E*	E*	E*
Survival Knife	E	E	E	E	E
Sharpening Stone	R	R	R	R	R
Survival Shovel				R	
Snow Shovel and Ice Saw					E
Survival Manual (applicable to environment)	E	E	E	E	E
Safety Pins	R	R	R	R	R
Clear Plastic Bags (Transpiration Bags)	R	R	R	R	R
Cord	R	R	R	R	R

Notes:

(a) Dependent on threat environment distress beacons and radios may be either unclassified (for Peace-time Search and Rescue (PSAR)) or encrypted (for Combat Search and Rescue CSAR). Note the current operational solution (PRC-112G) contains both radio and beacon capability along with GPS capability.

(b) IR Glint patch for CSAR applications only

Superseded

(c) Alternative portable water purification devices may be used however these need to be verified to provide a suitable quality of water.

2.160. **Survival Aid General Requirements and Considerations:** The following General requirements and considerations apply to survival aids.

(a) **Design Requirement (Essential).** *Survival Aids that are prone to damage or degradation by water must be contained in waterproof packaging.*

(b) **Design Requirement (Essential).** *Survival Aids with sharp edges must be packaged to prevent injury to personnel or damage to inflatable ALSE which it is packaged with.*

(c) **Design Requirement (Essential).** *Survival Aids must have a means of preventing loss such as a lanyard connecting them to an ALSE Ensemble, life raft or survival kit as applicable.*

(d) **Design Requirement (Essential).** *Where it is not immediately obvious survival aids must be marked for identification and method of operation.*

(e) **Design Requirement (Essential).** *Survival Aid packaging must be able to be opened with chilled and/or gloved hands. This must be demonstrated by the Chilled Hands and Gloved Hands tests of SAE Aerospace Recommended Practice ARP1282 Rev B Survival Kit, Life Rafts and Slide Rafts.*

(f) **Design Requirement (Recommended).** *Metallic survival aid components should be resistant to salt-water corrosion.*

(g) **Key Consideration.** The packaging for Survival Aids needs to be suitably designed to cater for the demands of storage, delivery method and intended use.

(h) **Key Consideration.** Survival Aid documentation should include instructions on the safe use, maintenance and storage of the survival aids. This is particularly important for pyrotechnic devices and bright strobe lights.

(i) **Key Consideration.** When new survival aids are introduced into service, aircrew should be appropriately trained for familiarisation with the equipment and instruction on its' safe use. This is particularly important for pyrotechnic devices, bright strobe lights and the Tourniquet and QuikClot bandage first aid items.

(j) **Guidance Maerial.**

1. Australian Army Land Warfare Procedures – General LWP-G-7-7-6 Environmental Survival identifies general considerations for the development of a survival kit at Chapter 2 paragraphs 2.24 for characteristics of a good survival kit and 2.25 for considerations for optimising the limited space and weight available for survival equipment.

2. In an operational environment it may be necessary to ensure that survival aids are easily concealable.

3. CSTS COMSURV Training identifies the need for carriage of a personal survival kit. ALSE will provide a basic kit. Selection of personal survival kit contents should not duplicate what is provided as ALSE but may supplement it to provide some of the recommended items if they are not able to be accommodated within the ALSE.

Superseded

2.161. **Integration Requirements and Considerations.** The following Integration requirements and considerations apply.

(a) Survival aids will generally be either carried on the person (aircrew ALSE Ensemble), carried within a life raft or separate survival kit. Some items are critical to the highest priorities of survival and are important to be readily available on the person, the method of carriage will be dependent on the aircraft type, its CRE and the type of operations conducted, and may also be limited by the available space on the platform.

(b) **Design Requirement (Essential).** *Where survival aids are integrated into an ALSE Ensemble, the size and weight of the survival aids must be suitable for accommodation by the ensemble.*

(c) Where survival aids are integrated into an ALSE Ensemble:

1. **Guidance Material.** Tailoring of the survival aid solution to particular environments/ operations and expected rescue time may assist in minimising the size and weight of survival aids.

2. **Guidance Material.** Refer to Carriers and Ensemble Integration domain for further requirements and key considerations related to integration with seat and restraint harness systems, the impact on flight controls movement and compatibility with other aspects of the aircraft cockpit and/or cabin.

(d) **Guidance Material.** Where survival aids are integrated into a Survival Kit refer to the Survival Kit and Rescue Pack Domain for further requirements related to the integration into the Survival Kit and to the aircraft.

(e) **Guidance Material.** Where survival aids are stowed in a Survival Kit or life raft, items with limited life or inspection/servicing requirements should be packaged so they are easily accessible for replacement or inspection/servicing.

(f) **Guidance Material.** To limit weight and bulk of survival equipment, duplication across survival aid sources (i.e. carried, survival kit, ditching kit life raft) should be minimised unless deemed necessary for expected survival scenarios.

2.162. **Item Specific Requirements and Considerations.** For a number survival aid types there are some key standards or requirements that must be applied. Where applicable these are prescribed below:

(a) **First Aid**

1. **Guidance Material.** First Aid items should be selected with consideration for injuries that may be sustained from an aviation emergency ditching, landing or crash and the expected survival environment. This should include some combination of bandages, dressings, padding and adhesive tapes. Advice should be sought from Joint Health Command to guide the selection of suitable first aid for a particular application.

(b) **Pyrotechnic Signalling Devices**

1. **Design Requirement (Essential).** *Laser flares must not be used as a substitute for conventional pyrotechnic flares.*

2. **Guidance Material.** Laser flares cannot be considered equivalent to conventional orange smoke flares which provide omnidirectional signalling of location during day conditions. They can be considered as supplemental to pyrotechnic flares only.

Superseded

3. **Guidance Material.** ALSLMU are not the SME for pyrotechnic signalling devices. For advice contact the Explosive Materiel Branch via casglsdembcoordination@dpe.protected.mil.au group inbox. For safety requirements applicable to pyrotechnic signalling devices refer to the eDEOP101 – Department of Defence Explosives Regulations.

(c) **Light Marker Distress (Strobe Light)**

1. **Design Requirement (Essential).** *Where a light marker distress (Strobe Light) is to be integrated with an ALSE Ensemble its intended position during operation must not be in close proximity to the survivor's eye to ensure the bright light does not impact their vision.*

(d) **Distress Beacons**

1. When interpreting Distress Beacon standards and technology, different terminology can be used to describe the type of distress beacon required. A Personal Locator Beacon (PLB) is generally a small, non-buoyant beacon that is easily carried on the person. An Emergency Position Indicating Radio Beacon (EPIRB) is a buoyant beacon generally used on boats and life rafts and designed to float in the water. Distress beacons are sometimes referred to as Electronic Location Transmitters (ELT), this is generally associated with those fitted to an aircraft however it is also sometimes used to include all types. Care should be taken in the selection of each device as the terminology and intended use can often vary from country to country.

2. **Design Requirement (Essential).** *All beacons used by Defence must be 406.025 MHz COSPAS–SARSAT capable unless approved by HQJOC AOC.*

3. **Design Requirement (Essential).** *Distress Beacons for PSAR applications must comply with the Australian Communications and Media Authority (ACMA) Radio communications (406 MHz Satellite Distress Beacons) Standard 2014 and the referenced requirements of AS/NZS 4280.1: 2017 (for EPIRBs) or AS/NZS 4280.2:2017 (For PLBs).*

4. **Design Requirement (Recommended).** *Distress Beacons for PSAR applications should comply with the remaining aspects of either AS/NZS 4280.1: 2017 (for EPIRBs) or AS/NZS 4280.2:2017 (For PLBs).*

5. **Guidance Material.** FAA TSO-C126a or TSO-C126b approved distress beacons are common. These comply with requirements from RTCA DO-204A or RTCA DO-204B respectively. These standards have not yet been assessed for equivalency with the ACMA standard or AS/NZS standards. As such if a TSO approved beacon is proposed to be used it should be assessed against the essential ACMA standard.

6. **Guidance Material.** TSO-C126 refers to distress beacons as Emergency Locator Transmitters of various types. The applicable types are Survival Class A (Buoyant) which is equivalent to an EPIRB and Survival Class B (Non-Buoyant) which is equivalent to a PLB. Other types relate to those ELTs that are installed to the aircraft itself.

7. **Guidance Material.** Distress Beacons must be registered through Headquarters Joint Operations Command (HQJOC) Air and Space Operations Centre (AOC) on the ADF Search and Rescue Beacon Database.

(e) **Compass**

Superseded

1. Most compasses are designed to operate in either the Southern or Northern Hemisphere. They do not function correctly in the opposite hemisphere due to an imbalance in the needle from alignment of the earth's magnetic field. As such it is important that a compass is selected suitable for the hemisphere of operation.

2. **Design Requirement (Recommended).** *Where operations span both hemispheres, or aircraft are routinely expected to operate in either hemisphere, a Dual hemisphere compass should be used.*

(f) **Sunscreen**

1. **Design Requirement (Essential).** *Sunscreen provided as a survival aid must be at least SPF 45+ in accordance with AS/NZS 2604:2012 Sunscreen products – Evaluation and Classification.*

(g) **Water**

1. **Design Requirement (Essential).** *Water used in packaged water must meet the requirements of the FSANZ standard 2.6.2 – Non-Alcoholic Beverages and Brewed Soft Drinks.*

2. **Design Requirement (Essential).** *Packaged water must meet the requirements FSANZ standard 1.6.1 (Microbiological Requirements for Food). Testing for E.coli should be conducted following the procedure listed in AS/NZS 4276.22.*

3. **Design Requirement (Recommended).** *Once filled, the air above the water level in packaged water should be totally displaced.*

4. **Design Requirement (Recommended).** *Packaged water should have the date of filling stamped after the words Date Filled.*

5. **Design Requirement (Recommended).** *Packaged water should have the batch numbers stamped after the words Bag Batch No.*

6. **Key Consideration.** The packaging for water needs to be suitably designed to cater for the demands of storage, delivery method and intended use for the water. For example water carried in a deployable rescue pack may be carried external to the aircraft cabin and be subject to altitude pressure variations, freezing at low temperatures (noting expansion of water on freezing) and being dropped from altitude.

(h) **Food**

1. **Design Requirement (Essential).** *Food sources provided as survival aids must meet the minimum ADF standard for Combat Rations which is prescribed in DEF(AUST) 10374 Food Safety Standard for Manufacturers and Suppliers of Combat Rations and their Components Standard, Issue 1.*

2. **Guidance Material.** One example of suitable food provisions is the Emergency Flying Ration which is a standardised ration in accordance with DEF(AUST) 10655 that can be included in survival kits or life rafts.

(i) **Knives**

1. **Design Requirement (Recommended).** *The considerations of Australian Army Land Warfare Procedures – General LWP-G-7-7-6 Environmental Survival Chapter 2 Section 2-1 should be applied to the selection of pocket and survival knives as applicable.*

Superseded

(j) **Electronic equipment**

1. **Design Requirement (Essential).** *Any electronic survival aids must be evaluated for safe carriage and use in accordance with the requirements for portable electronic devices in DASDRM Section 5 Chapter 6 Role Equipment and Portable Electronic Devices (including Annex A). This will ensure safety of the electrical design in an aviation environment (including batteries) as well as for Electromagnetic Interference and Compatibility (EMI/C).*

2. **Key Consideration.** For battery powered devices where spare batteries are provided they should be compatible with the OEM recommended battery type to ensure performance.

(k) **Other.** Requirements for some survival aid items have not yet been developed. Contact ALSLMU for further information and advice on requirements for other items.

Thermal / Immersion Protection

2.163. The main objective of immersion protective clothing is to limit the rate of heat loss of a survivor in water to avoid death from hypothermia before rescue. This objective is achieved by the provision of thermal insulation, generally provided through insulated undergarments, and outer water resistant layers to ensure the insulation continues to perform satisfactorily post submersion in cold water.

2.164. Two major types of immersion suit exist, quick don and constant wear. Both are used in the ADF in order to ensure that all use cases are catered for. Generally, constant wear suits are used in circumstances where there is inadequate space or time to react in an emergency, while quick don suits may be used on larger aircraft where there may be adequate warning prior to a ditching event.

2.165. **Design Requirement (Essential).** *Constant wear immersion suits must comply with ISO 15027-1:2012.*

(a) *Tailoring. The requirements listed at 4.5 relating to conspicuity are deemed non-essential as a less conspicuous suit may be required for operational reasons or to minimise distracting reflections within the flight deck.*

2.166. **Design Requirement (Essential).** *Quick don immersion suits must comply with ISO 15027-2:2012.*

(a) **Tailoring.** The requirements listed at 4.5 relating to conspicuity are deemed non-essential as a less conspicuous suit may be required for operational reasons or to minimise distracting reflections within the flight deck

2.167. Design Requirement (Essential). All immersion suits must be tested to ISO 15027-3:2012.

(b) **Guidance Material.** The standard gender breakdown for testing assumes 6 personnel of which at least one but no more than three are female. It is recommended that testing be conducted with an equal gender balance where possible.

2.168. **Design Requirement (Recommended).** *Quick don immersion suits should also comply with the illumination resistance requirements outlined at 4.12.2 of ISO 15027-1:2012.*

Superseded

(a) **Guidance Material.** Properly stored quick don immersion suits are not expected to be significantly exposed to light, but it is possible that some may become exposed therefore some resistance to degradation is desired.

2.169. **Design Requirement (Recommended).** *Immersion suits should have an attached sprayhood as per ETSO-2C502 requirement 10 – breathing protection.*

(a) **Guidance Material.** A spray hood can minimise the risk of secondary drowning in rough water. Should a spray hood be impractical other means of limiting secondary drowning should be implemented.

2.170. **Key Considerations.** The following key considerations should be taken into account when introducing immersion suits to service.

(a) There exists several classes of immersion suit, each rated for varied temperatures and durations of immersion. It is important the appropriate class of immersion suit is selected based in the water temperature, likely response time in an emergency and the ambient air temperature. A solution with excessive insulation may lead to heat related injury, insufficient insulation may lead to hypothermia.

(b) Integration of Immersion suits with other ALSE and confined cockpits must be completed to ensure that the immersion suit does not significantly impede the wearer or their equipment

Survival Kits and Rescue Packs

2.171. Survival Kits and Rescue Packs provide a means of holding a range of survival aids for use either following an aircraft emergency or for delivery to survivors as part of a Search and Rescue operation. Guidance relating to the internal contents (life rafts and survival aids) of survival kits and rescue packs can be found separately in the domain in which they belong.

2.172. Survival Kits and Rescue Packs are categorised by the following definitions:

(a) **Survival Kit.** A kit installed or carried on to an aircraft containing survival aids to assist crew and passengers in the event of an emergency landing, ditching or crash.

(b) **Rescue Pack.** An air droppable pack designed to provide assistance to survivors on the land or at sea. This may include survival aids, first aid, medical or other equipment and life rafts as required by the intended application.

2.173. **Design Requirement (Essential).** *When fitted to an aircraft survival kits must be stored in a marked location that is rapidly accessible and does not hinder evacuation.*

2.174. **Design Requirement (Essential).** *Survival kits must meet the fire resistance requirements of Part I of Appendix F to FAR 25 as applicable.*

2.175. **Design Requirement (Essential).** *Battery operated equipment must have sufficient battery capacity available to allow for operation throughout the intended survival duration of the survival kit or rescue pack in which the equipment is contained.*

(a) **Key Consideration.** This requirement may be met though a single large capacity battery, multiple interchangeable batteries or a means to reliably recharge the battery in the field.

2.176. **Design Requirement (Recommended).** *The battery charge at which battery operated equipment will cease to function correctly should be established.*

Superseded

2.177. **Design Requirement (Recommended).** *Rescue Packs should meet the fire resistance requirements of part I of Appendix F to FAR 25 as applicable.*

2.178. **Design Requirement (Recommended).** *Battery expiration dates of included equipment should be marked on the exterior of a survival kit or rescue pack.*

2.179. **Design Requirement (Recommended).** *Survival kits and rescue packs should be designed in a manner such that the probability of any error in configuration of its contents is limited.*

2.180. **Design Requirement (Recommended).** *Survival Kits and Rescue packs should not become damaged in a manner that reduces its function by temperature cycles, pressure cycles, forces or exposure to other environmental conditions placed upon it both during flight and when not in use but fitted to the aircraft on the ground.*

2.181. **Key Considerations.** In addition to the standards and requirements identified the following key considerations should be taken into account in the design of Survival Kits and Rescue Packs.

(a) Components of Survival Kits and Rescue Packs should be generally resistant to wear and tear.

(b) Weight and balance of the rescue pack should be understood and suitably communicated to operators.

(c) Survival Kits and Rescue Packs should be packed in such a manner to minimise the likelihood of damaging survival aids.

(d) Further guidance and test methods are contained in MIL-HDBK-1763 Aircraft Stores Compatibility.

(e) AMTDU's Aerial Delivery Development personnel are the SME's and certifier for load clearance and should be contacted for advice on how to attain and maintain load clearances.

Continuing Airworthiness Requirements

2.182. To ensure that Survival Kit and Rescue Pack functions are not compromised through inadequate continuing airworthiness management systems, the following continuing airworthiness requirements and key considerations apply.

2.183. **Continuing Airworthiness Requirement (Essential).** *All components of Survival Kits and Rescue Packs must be regularly inspected and maintained in accordance with approved Instructions for Continuing Airworthiness. This includes ensuring that batteries are inspected, charged and replaced as required.*

2.184. **Continuing Airworthiness Requirement (Essential).** *Life Support equipment must be inspected, repaired and packed in an approved maintenance facility IAW AAP 7220.001-99 Aeronautical Life Support Instructions.*

2.185. **Continuing Airworthiness Requirement (Essential).** *Crew and maintainers must be trained in the correct procedures for manual handling for the purposes of loading and deploying Survival Kits and Rescue Packs.*

2.186. **Continuing Airworthiness Requirement (Recommended).** *Battery operated equipment should have batteries replaced or recharged once the charge drops below the minimum required for correct functioning.*

Superseded

2.187. DASDRM Section 3 Chapter 6 includes requirements for Aircraft Oxygen Systems. Some of the requirements of that chapter may be considered applicable to oxygen masks as a subset of the oxygen system and should therefore also be considered in addition to the requirements of this section.

2.188. **Design Requirement (Essential).** *Materials used in oxygen / smoke and fumes masks must be assessed as suitably fire resistant, at the intended temperature ranges, and oxygen concentration levels to which the mask will be exposed by applying relevant materials standards and requirements prescribed within S3C6.*

2.189. **Ejection Seat Aircraft.** For ejection seat aircraft the following requirements must be applied for oxygen / smoke and fumes masks.

(a) **Design Requirement (Essential).** *The requirements of Air Force Interoperability Council Air Standard ASM 4068 – Physiological Requirements for Aircrew Oxygen Masks for Use at High Breathing Pressures Ed2 v2.*

(b) **Design Requirement (Essential).** *The mask related requirements in Air Force Space Interoperability Council Air Standard ASMG 4039 – Minimum Physiological Requirements for Aircrew Demand Breathing Systems Ed1 v2.*

(c) **Design Requirement (Essential).** *Inwards relief features, such as an anti-suffocation valve, must be incorporated into oxygen / smoke and fumes masks unless it can be demonstrated that a failure of the breathing air system, that induces suffocation, meets the associated failure probability objective for a catastrophic failure condition. Analysis is one way of demonstrating this compliance.*

2.190. **Non-Ejection Aircraft.** For Non-Ejection aircraft the following requirements apply:

(a) **Design Requirement (Essential).** *For aircraft with type certification based on civilian airworthiness codes the following civilian based requirements of oxygen and smoke and fumes masks must be applied:*

1. *Pilot/Co-Pilot/Other Sedentary Aircrew masks must be of the Quick-Don type and meet the requirements of:*
   - i. *TSO-C99a Flight Deck (Sedentary) Crewmember Protective Breathing Equipment, of 05 Jun 08, or*
   - ii. *ETSO-C99a Flight Deck (Sedentary) Crewmember Protective Breathing Equipment, of 05 Aug 16.*
2. *Mobile Aircrew masks must meet the requirements of:*
   - i. *TSO-C116a Crewmember Portable Protective Breathing Equipment, of 30 Jul 09,or*
   - ii. *ETSO-C116a Crewmember Portable Protective Breathing Equipment, of 05 Aug 16.*
3. *Passengers masks must meet the requirements of:*

Superseded

i. *TSO-C64b Federal Aviation Administration Technical Standard Order: Passenger Oxygen Mask Assembly, Continuous Flow, of 21 May 08, or*

ii. *ETSO-C64b European Technical Standard Order: Oxygen Mask Assembly, Continuous Flow, Passenger, of 19 Dec 16.*

4. *Demand Oxygen Masks must meet the requirements of:*

i. *TSO-C78a Crewmember Demand Oxygen Masks, of 27 May 08, or*

ii. *ETSO-C78a Crewmember Demand Oxygen Masks, of 21 Feb 18.*

5. **Tailoring Advice.** The standards referenced by the TSO documents prescribe particular microphone standards. In the event that the microphone standards are not suitable for integration with the aircraft then alternative microphones may be permitted. In such cases it must be shown that the microphones are safe to operate in the oxygen rich environment with an equivalent level of safety.

6. **Key Consideration.** Oxygen Masks designed under the prescribed Ejection Seat Aircraft requirements can be utilized in Non-Ejection aircraft if the design is deemed suitable to the CRE.

(b) **Design Requirement (Essential).** *For other ADF aircraft the requirements identified above for civil based aircraft at sub-para a must be applied with the following additional considerations:*

1. *Use during periods of intended cabin depressurisation, not just for emergency, must be accounted for. This includes the need to allow the wearer to occlude their nostrils in order to perform the Frenzel and/or Valsalva manoeuvre whilst wearing the mask.*

2. *Operating altitude / cabin altitude requirements for defence aircraft may exceed the requirements of the prescribed standards. In such cases the relevant standard must be tailored to cater for the higher altitudes of a specific aircraft's CRE.*

3. *In some aircraft CRE, passengers may require additional smoke and fumes protection of the eyes. In these cases TSO-C64b / ETSO-C64b will not be suitable. SAE AS8048 Performance Standard for Passenger Smoke and Toxic Fumes Respiratory Protective Equipment or standards for aircrew protective breathing equipment must be applied for passenger applications where protection of the eyes from smoke and fumes is required.*

(c) Where only smoke and fumes protection is required (for example on aircraft operating below the altitudes at which supplementary oxygen is required such as rotary wing aircraft) the following standard may be applied:

1. **Design Requirement (Recommended).** Air Force Interoperability Council Air Standard ASM 4066 Ed 1v4 Smoke Protection Breathing Equipment Used by Mobile Aircrew in Non-Ejection Seat Aircraft at Pressure Altitudes up to 10,000ft.

2. **Design Requirement (Recommended).** In addition to ASM 4066 Ed 1v4 requirements the mask should allow the wearer to occlude their nostrils in order to perform the Frenzel and/or Valsalva manoeuvre whilst wearing the mask.

(d) **Design Requirement (Recommended)** Inwards relief features, such as an anti-suffocation valve, should be incorporated into oxygen / smoke and fumes masks unless analysis

Superseded

demonstrates that a failure of the breathing air system, that induces suffocation, meets the associated failure probability objective for a catastrophic failure condition.

2.191. **Key Considerations**. In addition to the standards and requirements identified the following key considerations should be taken into account in the design of an Oxygen / Smoke and Fumes mask:

(a) Materials should not contaminate breathing gases so as not to irritate the respiratory system or pose long term safety hazards.

(b) Parts of the mask which come into contact with the skin of the head and neck should be made of soft, pliable materials which are non-irritating, non-allergenic, and non-toxic to wet and dry skin.

(c) Masks should not impart an offensive smell or taste to the wearer.

Underwater Emergency Breathing

2.192. Underwater Emergency Breathing Devices (UEBD) consist of a means of storing pressurised air and a regulated delivery system. UEBD are designed for use in rotary wing aircraft to extend the available escape duration should it be rapidly sinking.

2.193. **Design Requirement (Essential).** *The UEBD must meet all requirements of ACS 4043 of 27 Feb 02.*

2.194. **Design Requirement (Essential).** *The UEBD must meet the following requirements from UK CAA draft technical standard CAP 1034 "Development of a Technical Standard for Emergency Breathing Systems" of May 2013.*

(a) *Be simple to deploy and capable of being operated with either hand. The number of deployment actions must be minimised, ideally, with no more than one action being required to activate the system on submersion.*

(b) *Potential snagging hazards must be reduced to a minimum. Any part of the UEBD that might pose a snagging hazard during flight, emergency evacuation, escape or must be suitably covered, protected or restrained.The UEBD design and materials used in its construction must be chosen to have no features which would have a detrimental effect on the performance or operation of other equipment, impair the performance of the seat harness or hinder harness release. UEBD must not impede or prevent escape from a submerged helicopter.*

2.195. **Design Requirement (Essential).** *Requirements 5.7.1 a to f of EN 250:2014 relating to demand regulator performance; work of breathing and respiratory pressure must be met in order to maximise ease of breathing and to minimise the risk of barotrauma.*

2.196. **Design Requirement (Essential).** *Pressure cylinders must meet the requirements of AS 2030.1-2009.*

2.197. **Design Requirement (Recommended).** *The mouthpiece, with the hose and general assembly should withstand a minimum of 1000N as per BS EN 250:2014 requirement 5.8.1 relating to external force on the hose assembly.*

2.198. **Design Requirement (Recommended).** *Head movement should not have any negative effects on the air supply pressure or volume at the mouthpiece.*

Superseded

2.199. **Key considerations.** The following are key considerations that should be considered when introducing underwater emergency breathing devices.

(a) UEBDs are designed to assist with proven existing egress procedures, they are not the only consideration in helicopter underwater escape.

(b) The intent of a UEBD is not as a SCUBA device, UEBD is intended for escape only, users should not attempt to re-enter the aircraft once they have successfully egressed.

(c) Extensive HUET training is required for all users of UEBD, regular training in proper use of the system is required in order to extract maximum benefit from the system should it be required in an emergency.

(d) Breathing air that meets the minimum standards prescribed at paragraph 4.4.2 of AS/NZS 2299.1:2015 should be used to fill the cylinder.

Table 2-2: Breathing air gas composition per 4.4.2 AS/NZS 2299.1:2015

Component	Concentration at 15°C and 101.3 kPa
Oxygen	(21 ±1)% by volume
Carbon Dioxide	≤600 ppm (≤1500mg/m^3)
Carbon Monoxide	≤5 ppm (≤8mg/m^3)
Oil	≤0.5 mg/m^3
Odour	No objectionable odour

(e) The available quantity of breathing air should be maximised while maintaining a form factor with minimal impacts on other ALSE and mobility. For example a 4500psi system is preferred over a comparable 3000psi system.

(f) Integration of UEBDs with clothing should consider the placement of all other equipment. The best overall solution which ensures that the UEBD is readily accessible while providing minimal impact on other equipment should be sought. Placement of the UEBD should also consider the forces of a crash and the potential for injury.

(g) As with any high pressure vessel, dangerous goods considerations are required when transporting UEBDs. This is managed through existing procedures for managing dangerous goods relating to scuba tanks.

(h) Filling procedures should be compliant with AS 2030.5-2009.

(i) Moisture content should be minimised and ideally be less than 100mg/m3 as recommended in AS/NZS 2299.1:2015 paragraph 4.2.4.

Superseded

Hearing Protection

2.200. Noise is a workplace hazard regulated by the WHS Regulations 2011 at Chapter 4, Part 4.1. Regulations 56, 57, 58 and 59. Importantly Regulation 56 defines the exposure standard for noise.

2.201. ADF policy is presented in SafetyMan Noise Management Procedure 04 – Noise Identification Assessment and Monitoring, which identifies that specialist advice is available to support noise assessments.

2.202. CASsafe Requirements for Managing Regulated Hazards, Regulated Hazard 2 - Noise provides relevant CASG policy and identifies that specialist advice is also available from the CASG directorate of Work Health and Safety.

2.203. Hearing protection includes both passive and Active Noise Reduction (ANR) and in some cases includes helmet design as a major contributing design factor. The aircraft platform cockpit and cabin noise profile is required when determining the type of hearing protection necessary. Different hearing protection configurations may be required for each individual aircraft platform. Alternate configurations may also be required to satisfy comfort requirements of individual aircrew and passengers.

2.204. Aircrew hearing protection generally needs to cater for communications and situational awareness of aircraft noises and warning signals. In many cases, Aircrew hearing protection will need to be integrated with a flight helmet. In some cases, passengers may need similar hearing protection solutions to aircrew, in others general Personal Protective Equipment (PPE) type hearing protection may be suitable. Regardless, the process of assessing noise hazards for passengers requires the same level of rigour as for aircrew to ensure adequate protection is provided.

IMPORTANT NOTE

The focus of this section is the identification of standards and requirements for hearing protection equipment selection. Selection of hearing protection lies within the identification of risk control measures phase of a risk assessment process and is considered PPE, the lowest level of control in the hierarchy of controls. Selection of hearing protection can only occur once the sources of noise are identified, the risks associated with the noise are assessed and understood (i.e. noise levels are measured) and the higher controls of elimination, substitution, engineering and administration have been considered and applied where reasonably practicable.

2.205. **Key Considerations.** for this process are provided along with the prescription of standards and requirements for hearing protection due to the importance of first understanding the noise hazard and managing it with a wider application of the hierarchy of controls.

Understanding Noise Hazards

2.206. **Key Consideration.** The Work Health and Safety (WHS) (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 should be applied to the assessment of aircraft noise hazards. (This is an approved code of practice under section 274 of the WHS A) AS/NZS 1269.0:2005(R2016) Occupational Noise Management - Part 0: Overview and General Requirements also provides guidance on adopting an integrated approach to noise management and outlines how the AS/NZS 1269 series of standards can be applied.

Superseded

2.207. **Key Consideration.** The first phase of managing noise is identifying the noise hazards and assessing the risk. This can be achieved by conducting noise surveys to measure and understand the noise aircrew and passengers on aircraft are exposed to. This should include consideration of pre and post-flight noise of the airfield that is routinely encountered. AS/NZS 1269.1:2005 (R2016) Occupational Noise Management – Measurement and Assessment of Noise Immission and Exposure provides suitable requirements and guidance on the types of noise assessment that may be required, the general objectives of an assessment and the instrumentation and procedures needed to carry it out. Of particular interest is Section 6.3 identifying noise assessments required for hearing protector programs and Section 8.5 detailing the measurement procedures required for selecting hearing protectors. Within Defence the following support is available:

(a) The Institute of Aviation Medicine (IAM) may be engaged to support the conduct of noise surveys for ADF aircraft.

(b) Environmental Health Officers (ENVHOs) may be engaged to support the conduct of noise assessments.

(c) CASG Directorate of Work Health and Safety may provide Occupational Medicine and Hygiene specialist advice.

2.208. **Key Consideration.** Once the noise risks are understood, WHS Regulations require them to be eliminated or otherwise minimised SFARP using the hierarchy of controls. AS/NZS 1269.2:2005(R2016) – Occupational Noise Management Part 2 Noise Control Management provides requirements and guidance on the management of noise controls and may be a useful reference for the consideration of higher order risk controls before applying hearing protection as PPE.

2.209. **Key Consideration.** All considerations of Section 5.6 of the WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 are applicable to the selection of hearing protectors.

Hearing Protector Selection Requirements

2.210. **Design Requirement (Essential).** *Where higher order risk controls cannot reduce noise exposure below the exposure standard (LAeq,8h of 85 dB(A), or LC peak of 140 dB(C), WHS Regulation 56) hearing protection solutions must be selected in accordance with AS/NZS 1269.3:2005 (R2016) Occupational Noise Management – Hearing Protector Program Section 6 and appendices A and B. The following ADF policy in SafetyMan must be applied:*

(a) *Both the Classification Method and then Octave-Band Method must be applied for all Red, Black and Extreme hearing protection zones (i.e. continuous noise levels exceed 100 dB(A)).*

(b) *For Earplugs and Earmuffs worn in combination for use in Black and Extreme hearing protection zones (i.e. continuous noise levels exceeding 115 dB(A)) the combined attenuation is calculated by adding 3 dB to the highest noise reduction level of the two personal hearing protectors. This must be considered as information from the relevant authority for the purposes of AS/NZS 1269.3:2005 (R2016) paragraph 6.2.5. At lower noise levels, manufacturer information on combined attenuation is to be used.*

2.211. **Design Requirement (Recommended).** The exposure standard applied for the selection of hearing protection should be reduced (from the regulated LAeq,8h of 85 dB(A) or LC,peak of 140 dB(C)) to an LAeq,8h of 80 dB(A) or LC,peak of 135dB(C) to account for the potential exposure of aircrew to ototoxic chemicals present in aviation fuel as recommended in the WHS (Managing Noise

Superseded

and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04.

2.212. **Design Requirement (Recommended).** *The exposure standard applied for the selection of hearing protection should be reduced (from the regulated LAeq,8h of 85 dB(A) or LC,peak of 140 dB(C)) to an LAeq,8h of 80 dB(A) or LC,peak of 135dB(C) for children. For the purpose of this requirement a 'child' is a person under the age of 17, who is too physically small to be fitted with hearing protection which would otherwise be available for use by adults.*

2.213. **Design Requirement (Recommended).** *Efforts should be made to reduce noise exposure below the exposure standard SFARP, cognisant of the following (where applicable):*

(a) Where routine work that requires speed or attentiveness, or where it is important to carry on conversations, the exposure should be kept to LAeq,8h of 70 dB(A) as identified by the WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015.

(b) Where sortie durations exceed 10 hours, exposure should be adjusted to account for increased risk of hearing loss in accordance with WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04.

(c) Where aircrew fly more than 5 days a week or more than 8 hours per day, exposure standards should be adjusted as described in SafetyMan Noise Management Procedure 04.

Hearing Protector Design and Performance Requirements

2.214. **Design Requirement (Essential).** *Hearing protectors must comply with the requirements of AS/NZS 1270:2002 (R2014) Acoustics - Hearing Protectors, tailored as follows:*

(a) *The majority of requirements and testing are designed for conventional hearing protectors such as Ear Muffs and Ear Plugs and may not be directly applicable to hearing protection solutions required for aircrew and passengers (e.g. those integrated with aircrew helmets). The contribution of the helmet to attenuation of sound should be considered as part of the hearing protection solution. Such solutions should be considered 'Other Devices' as identified at Section 5, and the clauses for complying with Section 2 general requirements as far as possible and applying testing of Sections 3 and 4 in a way that meaningful comparisons can be made with more conventional hearing protectors, should be applied as in the following examples:*

1. *The low temperature drop test for helmet-mounted earmuffs should not be applied to aircrew helmets where the hearing protectors are contained within the helmet and are unlikely to be damaged by situations that this test represents.*

2. *Aircrew helmets usually achieve fitment of the hearing protector to the ear by custom fitting of the helmet. As such, headband-flexing test would not be applicable. In such cases, an analytical assessment of the hearing protection elements of the helmet to ensure sufficient retention and sealing around the wearers ear can be achieved by the means of fitting and adjustment provided with the helmet.*

(b) *ANR Hearing Protectors are considered 'Specialist Devices' in accordance with clause 1.4.12 and should be treated in accordance with Section 5. Further consideration of ANR and other applicable requirements is provided in a dedicated section below.*

Superseded

(c) *Hearing protection solutions may be assessed/tested to international standards. To cater for these solutions this requirement may, where not deemed reasonably practicable to have the solution tested to this AS/NZS 1270:2002(R2014), be met by suitable analysis to determine that the international standard provides an equivalent level of attenuation.*

Active Noise Reduction Requirements

2.215. ANR technology provides improved attenuation at low frequencies (up to 1000 Hz) and negligible attenuation (and in some cases slightly negative attenuation) at higher frequencies (above 1000 Hz). Any selection of ANR will require detailed understanding of the platform noise profile and the specific performance details of the ANR technology being considered to ensure it provides suitable noise attenuation and its effect on intelligibility of communications is understood. When ANR hearing protection is to be used, the following requirements and considerations apply:

(a) **Key Consideration.** ANR hearing protectors are considered 'Specialist Devices' and should be tested as passive devices in accordance with AS/NZS 1270:2002(R2014), as identified above, for the purposes of a baseline comparison to conventional protectors. This will also provide an assessment of the minimum protection afforded in the event of ANR failure.

(b) **Design Requirement (Recommended).** *Active noise reduction systems used in helmets and headsets should be evaluated in accordance with Advisory Publication (ADV PUB) ASMG 4092 Ed 1 (v1, v2 or v3) – The Evaluation of Active Noise Reduction (ANR) in Flight Helmets and Headsets with the following considerations:*

1. *The Measurement of Sound Pressure Levels at the Ear Canal method should be used as the preferred laboratory method noting it is suitable for ear cup type protectors.*
2. *Other laboratory methods presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) for assessing attenuation should be considered for the evaluation of in-ear ANR devices where the measurement by microphone is not possible.*
3. *The laboratory method for assessing signal detection presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) should be used.*
4. *The subjective Modified Rhyme Test method presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) should be used to assess speech intelligibility.*
5. *The field assessment of attenuation inflight by measuring the Ear Canal sound pressures by microphone and comparing with measurements outside of the helmet/ headset should also be used noting this is limited to assessment of ear cup type protectors. Where used in combination with earplugs or for in-ear ANR systems, additional assessment is required. Subjective assessment via questionnaire is also identified and considered suitable to form part of an evaluation of ANR systems.*
6. *The method of field assessment for improvement in signal detection by introducing tones through the ICS during flight/operating profiles and comparing the volume settings required with ANR OFF and ON to provide a measure of improved signal detection should be applied.*
7. *Subjective Field Speech intelligibility assessment methods should be used to evaluate ANR improvements in speech intelligibly.*

Superseded

(c) Some international standards for Active Noise Reduction have been identified by ALSLMU but are yet to be fully considered. Contact ALSLMU to discuss ANR requirements.

General requirements and considerations for hearing protection solutions

2.216. **Design Requirement (Essential).** *Aircraft warning tones and annunciations must remain audible to aircrew whilst wearing the hearing protection.*

2.217. **Design Requirement (Essential).** *Speech communications over radio and intercommunications systems must remain audible and intelligible to aircrew whilst wearing the hearing protection.*

2.218. **Key Consideration.** The effect of hearing protection on direct voice communications should be evaluated where required. The safety of personnel will need to be prioritised to ensure exposure standards are not exceeded. This may necessitate additional communications equipment where such communication is deemed essential and cannot be achieved directly with necessary hearing protection in place.

2.219. **Design Requirement (Essential).** *Where rapid altitude pressure changes are possible (e.g. fast jet applications) hearing protectors that effectively seal the ear canal must allow for equalisation of pressure across the protector between the inner ear and surrounding environment to prevent ear damage. E.g. when an individually moulded Communication Earplug (CEP) is used a vented CEP transducer is required.*

2.220. **Key Considerations.** Hearing protection to be used with aviation helmets should not adversely impact other requirements of the helmet, particularly the provision of impact, penetration and/or ballistic protection. This is especially important when fitting new hearing protection to an existing helmet, and less so when being considered as an integrated part of the helmet design. The following should be considered as applicable:

(a) When fitting new hearing protection to an existing helmet the impact on the compliance of a helmet to its specification should be assessed.

(b) When implementing a new integrated helmet and hearing protection solution the impact of the hearing protection elements on the requirements prescribed for the Helmet Domain in this chapter of the DASDRM should be considered.
2.221. Key Consideration. Where moulded Earplug or CEP are used the application of lubricant can achieve increased attenuation along with improved ease of insertion and comfort. If lubricant is required to achieve improved attenuation, assessment should consider whether the lubricant will persist in the ear for the duration of noise exposure.

2.222. **Key Consideration.** Where hearing protection solutions allow use of ancillary connected devices (such as Bluetooth connected mobile phones and media players) the sound levels of ancillary audio media play back will contribute to the noise exposure and will need to be considered in noise assessments. Guidance on appropriate use of ancillary devices and the contribution to noise levels should be provided in associated Orders, Instructions and Procedures (OIP).

Related considerations

2.223. When introducing hearing protection solutions the following related key considerations apply:

Superseded

(a) **Key Consideration.** Hearing protectors should be adequately managed and supported by a hearing protector program to ensure their full effectiveness is achieved. AS/NZS 1269.3:2005 (R2016) Occupational Noise Management Part 3 Hearing Protector Program Section 4 identifies necessary Management Responsibilities whilst Sections 7 through 13 provide guidance that will support the development of a robust program that supports issue, fitting, cleaning, maintenance, training and effective use of hearing protectors.

(b) **Key Consideration.** When providing hearing protection solutions the provision of suitable instructions and training in the OEM's recommended use of the protection to users is essential. The level of protection provided can be significantly reduced if not used correctly for the entire duration of noise exposure, leading to hearing loss or tinnitus. This is particularly important for foam earplug type protection which can provide little to none of the intended attenuation if not inserted correctly. SafetyMan Noise Management Procedure 07 Education, Training and Instruction provides ADF policy on Noise training and provision of promulgation of instructions in OIP.

(c) **Key Consideration.** The WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04 provides guidance on the ongoing monitoring of noise hazards and reviewing control.

(d) **Key Consideration.** Whilst the purpose of hearing protection ALSE is to eliminate or reduce the exposure of personnel to aircraft noise, crew being able to hear the operation of aircraft systems contributes to situational awareness. Crew being able to hear the functioning or malfunctioning or aircraft systems at moderate sound levels through hearing protection is considered desirable.

Night Vision Systems

2.224. Aviation Night Vision Imaging Systems (ANVIS) are helmet mounted goggle assemblies that provide aircrew with night vision capabilities to support the conduct of flying operations at night. The goggles come in a binocular configuration and are powered by battery. There are currently two types of ANVIS goggles approved for Defence use: the AN/AVS-6 and AN/AVS-9. Within these types, there are different configurations that relate to the type of objective lens and type of Image Intensifier Tube (IIT). RTCA DO-275 contains the minimum operational performance standards (MOPS) for aviation night vision imaging systems (NVIS).

2.225. **Design Requirement (Essential).** *NVG technologies must comply with STANAG-7042 ED.2 Image Intensifying Night Vision Devices for Aircraft.*

2.226. **Key Considerations.** When introducing new NVG technologies or modifying extant configurations the following considerations apply:

(a) Institute of Aviation Medicine (IAM) should be engaged to assess physiological effects of significant changes to NVG technologies, such as change in phosphor colour (white vs green) or large changes in performance levels compared with in service NVGs.

(b) Ground based assessment of NVGs should be made prior to progressing to flight testing. (Defence Science and Technology Group have NVG test facilities available).

(c) NVGs should be assessed for compatibility with Aircraft Lighting (additional information and standards for Aircraft Lighting and Night Vision Imaging Systems can be found in Section 3 Chapter 7).

Superseded

(d) NVGs should be assessed for compatibility with Aircraft Head Up Display (HUD) systems where applicable.

(e) NVGs should be assessed for compatibility with aerodrome lighting and obstacle lighting, Noting there are known issues with LED based obstacle lighting not being visible through NVGs, the risk associated with any non-compatibility should be identified and eliminated or otherwise minimised SFARP.

CBRN Protection

2.227. CBRN protection ALSE consists of body covering garments, masks, and equipment to supply uncontaminated breathing air. The body covering garments can be worn under, over, or in lieu of other ALSE or flying clothing. Masks can be half face oronasal types, or full face masks which can also be incorporated in a hood.

2.228. **Design Requirement (Essential).** *An assessment of the effectiveness of a CBRN ALSE countermeasure in a CBRN threat environment for which it is intended to be used must be conducted in consultation with applicable subject matter experts.*

(a) **Guidance Material.** Subject matter experts should belong to the Department of Defence, or be otherwise endorsed by applicable agencies in the Department of Defence. As an example the Chemical Biological Defence Branch of the Defence Science and Technology Group would be suitable for consultation regarding chemical or biological threat environments.

2.229. **Design Requirement (Essential).** *Any part of CBRN ALSE which covers the face must facilitate one handed doffing.*

2.230. **Design Requirements (Essential).** *CBRN ALSE must facilitate the wearer drinking without compromising CBRN protection.*

2.231. **Design Requirement (Essential).** *CBRN ALSE must protect the wearer from hypoxia as per paragraph 4c of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.232. **Design Requirement (Essential).** *A CBRN ALSE mask must allow the wearer to eliminate mucus and vomitus from the mask as per paragraph 4i of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.233. **Design Requirement (Essential).** *CBRN ALSE must facilitate donning and doffing contaminated CRBN ALSE as per paragraph 9 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.234. **Design Requirement (Essential).** *CBRN ALSE which incorporates an oronasal mask must seal per paragraph 12a of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.235. **Design Requirement (Essential).** *A CBRN ALSE mask must facilitate the equalisation of inner ear pressure as per paragraph 13 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.236. **Design Requirement (Essential).** *A CBRN ALSE mask which incorporates optical transparencies must incorporate anti-mist/anti-fogging features as per paragraph 17 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

Superseded

2.237. **Design Requirement (Essential).** *If CBRN ALSE displaces eye and face protection ALSE, the CBRN ALSE must be assessed for suitability as eye and face protection as per the eye and face protection domain portion of this chapter.*

2.238. **Design Requirement (Essential).** *The material used for any item of CBRN ALSE which is worn as the outer layer of clothing must comply with the 'Material requirements' portion of BS EN 1149-5:2008 - Protective clothing - Electrostatic properties Part 5: Material performance and design requirements. Pre-test conditioning of the test specimen by laundering is not required.*

(a) **Tailoring Advice.** The purpose of this design requirement it to ensure that CBRN ALSE does not pose a hazard in an aviation environment due to electrical arcing caused by static electricity. An alternate standard may be used if it can be shown to prevent the CBRN ALSE from posing a hazard due to static electricity build up or discharge.

2.239. **Design Requirement (Essential).** *The material making up the outer layer of CBRN ALSE which is worn as the outer layer of clothing must be subject to Test Procedure A – Surface Ignition of ISO 15025:2016. Pre-test conditioning of the test specimen by laundering is not required. Adherence to the following criteria must be assessed for a material or garment passing this test:*

(a) *No specimen shall give flaming to the top or either side edge.*

(b) *No specimen shall give hole formation.*

(c) *No specimen shall give molten or flaming debris.*

(d) *The mean value of the after flame time shall be equal to or less than 2 seconds.*

(e) *The mean value of the afterglow time shall be equal to or less than 2 seconds.*

2.240. **Design Requirement (Essential).** *The material making up the outer layer of CBRN ALSE which is worn as the outer layer of clothing must be subject to Test Procedure B – Bottom Edge Ignition of ISO 15025:2016. Pre-test conditioning of the test specimen by laundering is not required. Adherence to the following criteria must be assessed for a material or garment passing this test:*

(a) *No specimen shall give flaming to the top or either side edge.*

(b) *No specimen shall give hole formation.*

(c) *No specimen shall give molten or flaming debris.*

(d) *The mean value of the after flame time shall be equal to or less than 2 seconds.*

(e) *The mean value of the afterglow time shall be equal to or less than 2 seconds.*

2.241. **Design Requirement (Essential).** *The weight, size and materials of a CBRN ALSE mask must comply with paragraph 8 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.242. **Design Requirement (Essential).** *Integration of CBRN ALSE must be conducted in accordance with the instructions contained in Air and Space Interoperability Council - ADV PUB ASM 4084 Methodology for Integration Testing of Aircrew Clothing and Equipment.*

(a) **Tailoring Advice.** ADV PUB ASM 4084 uses non proscriptive language such as 'should' rather than terms such as 'must' or 'shall'. This design requirement mandates that all portions of ADV PUB ASM 4084 must be considered, but compliance findings of 'not applicable' can be assessed as acceptable.

Superseded

2.243. **Design Requirement (Essential).** *CBRN ALSE must facilitate the elimination of bodily waste.*

(a) **Tailoring Advice.** CBRN ALSE intended for short term wear must facilitate urination. Failing to do so is likely to result in wearers self-restricting fluid intake which could lead to dehydration. CBRN ALSE intended for longer term wear must accommodate defecation and the management of menstrual blood flow.

(b) **Guidance Material.** Management of diet and use of medication, both under the supervision of an aviation medical officer, can assist in managing the requirement for defecation and managing menstrual blood flow.

2.244. **Design Requirement (Essential).** *CBRN ALSE masks must either interface with existing ICS equipment or contain ICS equipment with an equivalent level of performance.*

2.245. **Design Requirement (Essential).** *If a CBRN mask is to be used with supplemental oxygen, materials used in the mask must be assessed as suitably fire resistant, at the intended temperature ranges, and oxygen concentration levels to which the mask will be exposed by applying relevant materials standards and requirements prescribed within Section 3 Chapter 6.*

2.246. **Design Requirement (Recommended).** *CBRN ALSE should incorporate anti-suffocation and anti-drown protection as described by paragraph 11e of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.247. **Key Considerations.** The following key considerations should be taken into account when introducing CBRN ALSE to ADF service:

(a) CBRN ALSE forms part of a CBRN protection capability. It cannot be effective without other elements of such a capability such as decontamination.

(b) CBRN ALSE can be used in a 'quick don' configuration. This could be used in the use cases of don prior to emergency egress from a CBRN protected platform, don for only part of a mission, or don in response to a detected CBRN threat. In the use case of don for part of a mission, a capability to confirm the absence of contamination prior to doffing is required. In the use case don in response to a detected CBRN threat, a CBRN threat warning mechanism is required.

(c) The user of CBRN ALSE intended for use in a 'quick don' role will require the ability to rapidly don and doff the equipment without assistance in the intended use environment. CBRN ALSE intended for permanent wear during missions can reasonably require the assistance of ALSE tradesmen or other crew members for donning and doffing.

(d) Exposure to foreign object contamination such as dust, sea spray, water or large amounts of sweat can reduce the effectiveness or useful life of CBRN ALSE.

(e) Unaided speech communications with ground crew or passengers is expected to be difficult in some aviation environments. The use of CBRN ALSE can further hinder such communication. Features in a CBRN ALSE system to aid the ability of wearers to participate in unaided voice communications are desirable.

ADDITIONAL ALSE GUIDANCE

2.248. ALSLMU review and amend the ALSE Standards prescribed in this chapter on an ongoing basis with the aim to maintain contemporary and traceable design requirements for each ALSE

Superseded

Domain. Before applying ALSE standards prescribed in this chapter, ALSLMU must be engaged for the latest advice as published requirements may become obsolete as a result of these reviews.

2.249. Contact ALSLMU for advice or assistance in accessing referenced standards via ALSLMU.DeskOfficer@defence.gov.au.

Superseded

INTRODUCTION

SYSTEM SAFETY

INTRODUCTION

2.1 Hazards in aircraft design are largely managed by employing aerospace design standards, since these standards represent many years of experience in the identification, analysis and control of hazards. However, while a system may be comprised of individual components that meet relevant reliability, safety or performance benchmarks on their own, the integration of these sub-systems can give rise to hazards at the system level. System safety is an engineering discipline that encompasses safety as a core aspect of any given system design (or design change). System safety comprises a number of tools and techniques to identify aircraft hazards and implement controls for those hazards to satisfy prescribed safety objectives. The application of these tools and techniques is an essential adjunct to a standards based approach to design, noting that design standards may:

(a) not apply to a whole system, merely elements of the system

(b) not be relevant for novel applications, which can pose novel hazards

(c) not keep up with technology advances, since standards often have review and update cycles that span many years

(d) allow different options depending on the system's criticality.

2.2 The implementation of a robust and effective system safety approach to Defence aircraft design is prescribed by the Authority. As system safety involves a whole-of-system approach to design, achievement of safety objectives requires the application of the system safety tools and techniques during aircraft design activities, normally through the adoption of a formal System Safety Program. The framework and processes under which system safety is applied for Defence aircraft designs may be articulated in a dedicated artefact (for example via a System Safety Program Plan) or inherently included in a design organisation's design processes.

2.3 **Other National Airworthiness Authority (NAA)/Military Airworthiness Authority (MAA) approaches to system safety.** The Authority has evaluated recognised NAA and MAA approaches to implementing system safety, and the associated aviation system safety standards, and concluded that intelligent application and in some cases expansion is required to satisfy Defence's regulatory and statutory requirements. For example, system safety standards may not account for Defence's obligations under the WHS legislation, since they may permit 'risk acceptance' once a specified risk level has been achieved. To promote the 'intelligent application' of system safety standards, this chapter adopts a different structure to other DASDRM chapters. Here, the chapter first defines the outcomes that are needed for a robust system safety program. The chapter then identifies where recognised NAA/MAA approaches to system safety require particular attention if they are to meet the Authority's prescribed outcomes. This approach provides design organisations with guidance to embed robust system safety practices into their engineering procedures.

Scope

2.4 This chapter presents Authority prescribed system safety design requirements that are applicable to design activities conducted for new aircraft and design changes. The Authority's prescribed design requirements for software safety are provided at Section 2 Chapter 3.

Superseded

2.5 The application of system safety to Defence aircraft designs achieves three key outcomes:

(a) Design safety objectives are:

1. defined, and

2. agreed by the Authority.

(b) Design hazards[1] are identified and controlled.

(c) Hazards identified during design, and associated controls, are documented.

2.6 Authority prescribed system safety design requirements that support the achievement of each of these outcomes are defined in the following paragraphs.

Defining safety objectives

2.7 The establishment of safety objectives for the particular aircraft type, cognisant of Defence's role and operating environment, is fundamental to the implementation of a robust system safety program and represents good aviation engineering design practice. Over many decades of aviation operations, these safety objectives have been demonstrated to achieve safe aircraft design. Consequently, the defined safety objectives represent the point at which further elimination or minimisation of identified hazards is unlikely to be reasonably practicable.

2.8 Safety objectives may be articulated as specific outcomes to be achieved (eg no single point failures having a catastrophic severity) or through objective safety criteria applicable to a particular hazard severity (eg Failure Probability Objectives (FPOs) and Design Assurance Levels (DALs)).

2.9 **SS Requirement (Essential) (Aircraft Acquisitions).** *Applicants for a Military Type Certificate must establish the quantitative safety criteria to be applied to the aircraft design (eg FPOs, catastrophic failure rate, and so on).*

2.10 A design organisation's design processes must describe how the organisation will ensure that quantitative safety criteria applicable to the Defence aircraft are identified and met for new aircraft designs. Prior to adopting the quantitative criteria as a basis for Defence aircraft certification, the design organisation must seek Authority agreement that the quantitative criteria represent an appropriate basis for safe aircraft operations and aircraft certification. The approved quantitative safety criteria will form an integral element of a Defence aircraft's Type Certification Basis.

2.11 **SS Requirement (Essential) (Aircraft Design Changes).** *Aircraft design changes must comply with the quantitative safety criteria from the initial aircraft design (ie the original aircraft design FPOs, catastrophic failure rate, and so).*

2.12 Once the quantitative safety criteria have been agreed by the Authority, they must be applied to all design changes unless prior agreement to adopt amended safety criteria has been obtained from the Authority. Any proposal to adopt amended safety criteria will represent a change to the approved TCB and, therefore, a Military Certification Review Item (MCRI) must be raised and submitted to the Authority for approval, regardless of whether the design is a Major or Minor change.

2.13 **SS Requirement (Essential)**. Applicants for a Military Type Certificate or Major Change approval must seek Authority agreement where reduced 'at risk' time is proposed to be accounted for in satisfying prescribed safety objectives.

Superseded

2.14 The use of limited exposure intervals (eg 'at risk' time) to justify a reduction in safety objectives for aircraft systems could lead designers into error. For example, it would be inappropriate to use a limited exposure interval for reducing safety objectives for a safety-critical system, where the adverse consequences of system failure cannot be clearly linked to a specific stage of flight or set of flight conditions (eg when establishing safety objectives for ejection seats). Where the use of 'at risk' time is proposed in support of meeting FPOs for a specific aircraft system, a determination on the adequacy of the proposed approach must be sought from the Authority.

2.15 **SS Requirement (Essential).** *The design or design change must not permit a single-point failure, or permit a combination of independent failures (including human errors associated with the human machine interface) involving safety-critical functions, which have a consequence of catastrophic, critical (MIL-STD-882 definition) or hazardous (FAR/CS 2x.1309 definition) severity.*

2.16 Safety-critical systems must be "fail-safe", such that any single failure will cause the system to revert to a state which will not result in an unsafe condition. Independent system failures and human machine interface errors that have a consequence of catastrophic, critical (MIL-STD-882 definition) or hazardous (FAR/CS 2x.1309 definition) severity must be eliminated through design.

2.17 When establishing compliance with this requirement, the failure of any single element, component or connection in a system or sub-system during any one flight must be assumed regardless of its probability, and such failures should not be catastrophic. Subsequent failures during the same flight, whether detected or latent, must also be assumed unless the joint probability of such failure conditions satisfies the relevant catastrophic, critical or hazardous FPO.

2.18 Compliance with this requirement must be demonstrated through a thorough safety assessment, including both qualitative and quantitative assessment of the design for each catastrophic, critical or hazardous failure condition identified by a Functional Hazard Assessment (FHA).

2.19 Redundant subsystems may also be implemented as a hazard mitigation strategy for safety-critical systems. These systems are used when the primary system fails and the function of that system is required to maintain continued safe flight and landing. The separation or shielding of redundant subsystems from damage, adverse operating effects of neighbouring systems/components, common cause faults and other environmental factors is essential for a safe design.

2.20 **SS Requirement (Essential).** *Information concerning unsafe system operating conditions must be provided to the crew to enable them to take appropriate corrective action.*

2.21 **SS Requirement (Essential).** *Systems and controls, including indications and annunciations, must be designed to minimise crew errors, which could create additional hazards.*

2.22 **SS Requirement (Essential).** *A 'safe' indication must not be presented to the crew when an 'unsafe' condition exists.*

2.23 Where analysis identifies that some action by the crew is required to achieve safety objectives, the designer must verify that:

(a) any identified indications are actually provided by the system

(b) any identified indications will actually be recognised

(c) any actions required have a reasonable expectation of being accomplished successfully and in a timely manner.

Superseded

2.24 When failure monitoring and indication are provided by a system, its reliability must be compatible with the safety objectives associated with the system function for which it provides the indication. In the case of aircraft conditions requiring immediate crew action, a suitable warning indication must be provided to the crew, if not provided by inherent aircraft characteristics.

2.25 Defence aircraft designs must also account for potential human error in interpretation of system operations and controls, or warnings, indications or annunciations, which could result in crew actions that introduce hazards. In particular, no probable system failure is to result in a 'safe' indication of an 'unsafe' condition so that the crew would incorrectly assume the system is available or functional. When an unsafe condition is annunciated or detected, the flying instructions must have clear and precise corrective procedures for handling the failure without an excessive increase in workload.

2.26 **SS Requirement (Essential).** *The design of a safety-critical system must prevent the inadvertent initiation by human error of a catastrophic failure condition.*

2.27 Defence aircraft designs must account for, and where reasonably practicable eliminate, potential impacts of human error in the design of safety-critical systems as a result of human machine interface issues. For example, the addition of a throttle lever detent prevents an inadvertent selection of reverse thrust without the conscious lifting of the throttle levers over the detent. Similarly, a guarded switch for activation of engine fire extinguishers prevents inadvertent switch selection.

2.28 **SS Requirement (Essential).** *The operation of non-required equipment (eg mission systems), must not interfere with the proper functioning of safety-critical systems or present a hazard themselves.*

2.29 Non-required systems do not need to perform their function throughout the entire aircraft operating and environmental conditions. However, in situations where the non-required equipment is to be operated, both normal operations and operation under failure conditions must not adversely affect safe aircraft operations, safety-critical systems or aircraft occupants. Hazardous conditions associated with normal operations, malfunction and erroneous behaviour of non-required equipment must be identified through FHAs.

Hazard identification and control

2.30 Robust hazard identification and control is a cornerstone of safe aircraft design. Design organisations must implement processes that support effective hazard identification and control that accounts for Defence's role and operating environment, and achieves the applicable safety objectives for each failure condition and associated hazard. Where safety objectives are not initially achieved, additional controls must be identified and implemented (using the hierarchy of controls) to meet the prescribed safety objectives.

2.31 **SS Requirement (Essential).** *Systematic techniques must be implemented for identifying credible hazards attributable to hardware, software and human system integration.*

2.32 System safety tools and techniques provide a robust means of hazard identification. These tools and techniques expose failure conditions where required safety criteria are not met or where integrated system hazards exist that have not been identified via compliance with design standards. For aircraft design changes, the existing aircraft Hazard Log (or similar) may also assist in identifying relevant hazards.

2.33 A design organisation's design processes must describe the application of formal hazard identification techniques and any tailoring to suit the specific design activity being undertaken. In particular, the processes should describe how the design organisation intends to apply system safety

Superseded

tools and techniques defined in aerospace system safety standards, including for those hazards applicable to complex system interactions, such as formal Functional Hazard Assessment/Analysis and/or System/Sub-System Hazard Analyses.

2.34 **SS Requirement (Essential).** *Identified hazards must be analysed to verify the achievement of safety objectives, or additional controls must be identified and implemented to achieve safety objectives.*

2.35 Robust analysis of hazards identified during design activities is an essential contributor to aviation safety. A design organisation's design processes must therefore describe the application of formal hazard analysis techniques and any tailoring to suit the specific design activity being undertaken. Hazard analysis techniques, commensurate with the scope of the design and potential impact on aviation safety must be employed to identify potential controls. For example, Fault Tree Analyses, Common Cause Analyses, Zonal Safety Analyses, Particular Risk Analyses and so on should be adopted where the design is complex and/or the consequences of failure are severe.

2.36 **SS Requirement (Essential).** Hazard controls must be implemented in accordance with the hierarchy of risk controls.

2.37 As discussed at paragraph 2.8, good practice in the aviation industry requires the identification of hazards and the implementation of controls to achieve prescribed safety objectives. However, where prescribed safety objectives are not met, and therefore the design falls outside of this good practice, any residual hazards must be robustly addressed through the implementation of additional controls. Implementation of controls must be undertaken with an appropriate understanding and application of the hierarchy of risk controls. The hierarchy of controls, per Regulation 36 of the WHS legislation, requires:

(a) implementing one or more of: substitution of the hazardous design with something safer; isolation of the hazard from people; and reducing the risk through engineering controls (eg use of mechanical guards or circuit isolation devices)

(b) if a risk remains, implementing administrative controls (ie procedures and training)

(c) if a risk remains, implementing the use of PPE.

2.38 The System Safety Design Order of Precedence, described in MIL-STD-882, needs intelligent application to fully satisfy the hierarchy of controls. Importantly, the effectiveness of procedures and training as a sole treatment strategy for hazards is unreliable as the primary control over the system life cycle. Warnings, cautions or other written advisory notifications must not be used as the only risk reduction method for hazards having catastrophic, critical (MIL-STD-882) or hazardous (FAR/CS 2x.1309) severities.

2.39 **SS Requirement (Essential).** *Consultation, co-operation and co-ordination between stakeholders must ensure all potential risk controls are identified and assessed for implementation.*

2.40 Consultation, co-operation and co-ordination frameworks enable robust hazard identification and analysis, and the identification and assessment of reasonably practicable controls, both design/technical and operational in nature. A design organisation's design processes must include the means by which stakeholder consultation, co-operation and co-ordination will be achieved. Operational stakeholder engagement is essential to evaluate potential operational controls for hazards when the design cannot meet prescribed safety criteria due to an adverse impact on Defence capability. Importantly, the framework must ensure that proposed design changes do not invalidate or impact extant controls for hazards that may not be related to the design under consideration.

Superseded

2.41 One framework under which consultation, co-operation and co-ordination can be enacted is through an established System Safety Group (SSG) or equivalent body, which is responsible for reviewing identified hazards and associated controls. If employed, the SSG should be structured to optimise timely and effective consultation, co-ordination and co-operation between technical, operational and maintenance subject matter experts, and other relevant specialists and stakeholders.

2.42 A key outcome of consultation, co-operation and co-ordination is the identification of and commitment to the means by which controls will be implemented, reviewed and maintained. Clear responsibilities for confirming that controls have been implemented and are being monitored for effectiveness must be established within the adopted framework.

2.43 **SS Requirement (Essential).** *Where meeting design safety objectives would have an unacceptable adverse effect on capability, the non-compliance must be approved by the Authority.*

2.44 Occasionally, compliance with design safety objectives may unacceptably impact Defence's required capability outcomes. Where prescribed safety objectives cannot be met, the applicant must submit for Authority consideration and agreement any proposal to amend safety objectives. The proposal to amend the safety objectives must be supported by clear risk characterisation associated with the amended safety objectives and confirmation by the relevant operational commander that the operational impact of compliance with the prescribed safety objectives is unacceptable. Only where the Authority concludes that the risk has been appropriately characterised, the operational commander has made an informed determination that the risk has been minimised so far as is reasonably practicable and residual risk retention is appropriate, will the Authority approve the amended safety objectives via a Military Certification Review Item (MCRI).

Documenting hazards

2.45 To ensure that all controls necessary to achieve prescribed safety objectives are effectively captured and monitored, and will be considered during future design activities, robust hazard documentation is required.

2.46 **SS Requirement (Essential).** *Hazards identified during design activities, and associated controls, must be documented.*

2.47 While the identification of hazards and associated controls through a robust system safety program will result in the achievement of safety objectives, the continued safety of the design will only be achieved if any controls associated with identified hazards are implemented and remain effective. Hazard documentation also assists designers to ensure that future design activities do not introduce changes that either remove an existing hazard control or impact the effectiveness of a control. Consequently, hazard documentation is required to provide a safety baseline for the design and to support future design activities.

2.48 One means of documenting hazards and controls is via a Hazard Log. If employed, a Hazard Log should be updated during the aircraft's service life whenever:

(a) previously unidentified hazards, or new hazards introduced as part of a design change, are identified

(b) new controls for an already identified hazard are implemented, or already implemented controls are removed/changed.

2.49 A Hazard Log (or equivalent) is a key artefact that supports the Military Type Certificate Holder to satisfy their obligations under DASR 21.A.44, regarding the in-service management of product hazards, and to support the outcomes required of organisational Safety Management Systems for the

Superseded

Defence aircraft. Where the relevant operational commander has agreed to retention of any safety risk that may be posed by hazards remaining after implementation of controls, a Hazard Log (or equivalent) may also be used to record risk retention details, including the criteria for review of control effectiveness and risk retention decision validity.

AUTHORITY RECOGNISED NAA/MAA APPROACHES TO SYSTEM SAFETY

2.50 As previously discussed the common civil and military system safety standards require intelligent application and in some cases expansion if they are to meet Authority prescribed system safety requirements. Where the application of these standards is subject to oversight by an Authority recognised NAA/MAA, and within the framework and scope of that authority's regulatory approach, application of the standards may entirely satisfy the Authority prescribed system safety requirements. However, where the standards are applied outside of the regulatory system of the relevant NAA/MAA, tailoring of the standards may result in the Authority prescribed requirements no longer being met.

2.51 This section describes how the adoption of common system safety standards, under Authority recognised NAA/MAA oversight, contributes to meeting the Authority prescribed system safety requirements in this chapter. This section also provides designers with guidance on the intelligent application of the common system safety standards, where a Defence aircraft design is not subject to oversight by an Authority recognised NAA/MAA.

Civil system safety approach

2.52 Common civil system safety standards applicable to aviation consist of the FAR/CS 2x.1309, the associated Acceptable Means of Compliance (AMC) (eg AC25.1309 and AMJ 25-1309), and the SAE standards ARP4754 Guidelines for Development of Civil Aircraft and Systems, and ARP4761 Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment. The civil standards describe methodologies and processes to establish safety objectives (both quantitative and qualitative) for the aircraft design, and to identify and control hazards. Indeed, the civil approach to system safety in aircraft design is closely aligned with Defence's approach to system safety.

2.53 **Designs certified by an Authority recognised NAA.** For new aircraft or modifications to existing aircraft, the extant civil certification applies where the Defence aircraft design meets the configuration, role and operating environment (CRE) approved by the certifying authority. Application of the civil system safety standards in this case will achieve compliance with all Authority prescribed system safety requirements, since:

(a) the role and operating environment of the aircraft is known and accounted for, by both the designer and certifying NAA, in the civil certification program

(b) risk retention due to shortfalls against the prescribed safety objectives is not permitted by Authority recognised NAAs

(c) there is a well-established history of designers enacting system safety programs that meet recognised NAA requirements for the development of safe aircraft designs using appropriate hazard controls

(d) hazards will have been documented, and controls established and published in relevant OIP to ensure safety objectives continue to be met.

Superseded

2.54 However, designs certified under a civil certification framework may not provide clear disclosure of all hazards and associated controls (per paragraphs 2.47 through 2.51), which is an important contributor to the MTCH meeting their DASR obligations. Consequently, additional insight into these hazards and implemented controls, or the ability to access this information where required, should be arranged.

2.55 **Designs developed using civil system safety standards, but not certified by an Authority recognised NAA.** As discussed above, application of the civil system safety standards within a civil regulatory context will satisfy the Authority's system safety requirements. Similarly, where the civil system safety standards are faithfully applied to designs that are not certified by an Authority recognised NAA, the design should also satisfy the Authority's prescribed safety objectives. However, where the prescribed safety objectives are not met, or the Defence aircraft CRE is outside of the scope of the CRE approved by the original certifying NAA, additional analysis of hazards that may be impacted will be required.

2.56 For all Defence aircraft designs where the civil system safety standards are adopted, the designer must ensure that the civil standards are rigorously applied. In particular, all prescribed safety objectives must be met, and the hierarchy of controls, per paragraphs 2.38 and 2.39, must be applied to those design elements where safety objectives cannot be met. Where the Defence CRE is outside of the scope of the CRE approved for the extant civil certification, designers must ensure that the CRE deltas are assessed to confirm that prescribed safety objectives are still met for the Defence CRE, or that additional controls are implemented where required. Finally, any identified hazards must be documented per paragraphs 2.47 through 2.51 to support in-service hazard management.

US Military system safety approach

2.57 MIL-HBK-516 Airworthiness Certification Criteria and MIL-STD-882 Department of Defense Standard Practice – System Safety define the US DoD system safety requirements for military systems. MIL-STD-882 describes methodologies and processes to establish safety objectives (both quantitative and qualitative) for the aircraft design, and to identify and control hazards.

2.58 **Designs certified by an Authority recognised US MAA.** US militaries have a well-established history of producing safe aircraft designs under their regulatory systems, which includes application of MIL-STD-882 and the adoption of system safety requirements prescribed in MIL-HDBK-516. Therefore, for new aircraft or modifications to existing aircraft, where the Defence configuration, role and operating environment (CRE) is consistent with that assumed for the US certification, application of MIL-STD-882 will achieve compliance with the majority of Authority prescribed system safety requirements.

2.59 However, a key aspect of the MIL-STD-882 approach to system safety is the ability for the 'program executive' to accept residual risk associated with hazards where the quantitative safety criteria (established per paragraphs 2.9 and 2.11 of this chapter) have not been met. This acceptance of residual risk may be inconsistent with both theDASRs and WHS legislation obligations. Therefore, any hazards 'accepted' under the MIL-STD-882 system safety approach will need to subsequently be evaluated by Defence, and additional controls implemented if reasonably practicable, to satisfy Defence regulatory and statutory requirements.

2.60 Finally, designs certified under a recognised US MAA certification framework may not provide clear disclosure of all hazards and associated controls (per paragraphs 2.47 through 2.51), which is an important contributor to the MTCH meeting their DASR obligations. Consequently, additional insight into these hazards and implemented controls, or the ability to access this information where required, should be arranged.

Superseded

2.61 **Designs developed and certified outside of an Authority recognised US MAA's regulatory system.** When employed outside of the context of a recognised US MAA's regulatory approach, MIL-HBK-516 and MIL STD-882 require considerable intelligent application if the Authority requirements for identification and control of hazards are to be met. The following issues may result in non-compliance with Authority prescribed system safety requirements:

(a) The specific system safety activities (ie 'tasks') described in MIL-STD-882 are intended to be tailored, such that only those relevant to the particular design under consideration are conducted. Therefore, intelligent selection of relevant 'tasks' is required if Authority prescribed safety outcomes are to be met.

(b) The MIL-STD-882 approach to documenting and characterising risk associated with hazards may lead to the definition of 'acceptable' risk levels, which is inconsistent with the DASR approach to hazard management and Australian WHS legislation.

(c) The adoption of a purely MIL-STD-882 system safety program may lead a designer into error since it does not require that all safety objectives are met and therefore implies that the designer has some discretion in terms of compliance.

(d) The MIL-STD-882 approach to identifying hazards may not be undertaken using formal system safety tools and techniques that are commensurate with the degree of criticality and/or complexity of the design under consideration.

(e) MIL-STD-882 does not explicitly include considerations for fail safe design (noting that fail safe design is included in MIL-HBK-516C Airworthiness Certification Criteria, although not all US military aircraft designs adopt this Airworthiness Code) or for establishing safety criteria for systems with limited at risk exposure times.

2.62 Where a designer proposes to adopt MIL-HBK-516 and MIL-STD-882 for Defence-unique designs that will be certified outside of a recognised US MAA regulatory approach, all of the potential shortfalls at paragraph 2.63 will need to be resolved through intelligent application of the standard. In all cases, the Authority prescribed system safety requirements detailed in the preceding sections of this chapter must be met.

UK Military system safety approach

2.63 DEF STAN 00-056 Safety Requirements for Defence Systems describes the generic UK MoD approach to implementing system safety for Defence systems, including aircraft designs. DEF STAN 00-056 is primarily a risk management standard that describes the process by which military equipment can be verified to have satisfied the UK safety legislation requirements. Without considerable intelligent application, the standard's 'risk management' approach is incompatible with the DASR approach to type certification/design approval and is inconsistent with Australian WHS legislation. As a result, DEF STAN 00-056 can only be used as the system safety standard for Defence aircraft design activities where agreement with the Authority has been reached on how the perceived deficiencies in the standard can be resolved.

SYSTEM SAFETY GUIDANCE

2.64 Further guidance on implementing the system safety requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

DEFINITIONS

AERONAUTICAL LIFE SUPPORT EQUIPMENT (ALSE)

INTRODUCTION

2.1. DASR ORO.40 prescribes the requirements for Military Air Operator (MAO) approval for the carriage and use of Aeronautical Life Support Equipment (ALSE). Under DASR ORO.40, MAO approval of ALSE is supported by a technical assessment that establishes the level of compliance of the ALSE with prescribed design requirements. Compliance may be demonstrated by either the ALSE having been certified as part of the aircraft type design, or by a technical assessment conducted in accordance with the provisions of the regulation.

2.2. The design of ALSE and the interface and interaction between the ALSE and the host aircraft must be comprehensively assessed during Defence aircraft acquisition and/or design changes. Failure to do so can result in ALSE that is not fully compatible with the aircrew/aircraft, or provides an inadequate level of aircrew protection.

2.3. **Role of Aeronautical Life Support Logistics Management Unit (ALSLMU).** ALSLMU is the Defence Subject Matter Expert (SME) for ALSE with respect to all Defence aircraft. The ALSLMU Deputy Senior Design Engineer (DSDE) may be appointed as a Delegate of the Safety Authority as ALSE 'Standards- DoSA (ALSE)' with scope to prescribe, revise and interpret design requirements for ALSE. ALSLMU should be engaged at the earliest opportunity during a new platform procurement, ALSE replacement or design change program to ensure that adequate advice is available to support application of these design requirements during the requirements definition phase and ensure suitability of an ALSE solution as the program matures.

Scope

2.4. This chapter presents the Authority prescribed design requirements, including aircraft integration requirements where applicable, for ALSE. The design and integration requirements provide MAO and CASG System Program Office teams with a basis for establishing that ALSE related risks to safety have been eliminated or otherwise minimised 'So Far as is Reasonably Practicable' (SFARP). The chapter also presents guidance on the technical evaluation of ALSE to support compliance with the prescribed requirements and operational commander decisions on approvals, where required.

DEFINITIONS

2.5. The following definitions are relevant to this chapter:

(a) **ALSE.** ALSE is equipment that supports Defence capability and aircrew in the performance of their duties throughout aircraft operations, including the time during and following a survivable aircraft accident and evacuation. The ALSE may form part of an ensemble or may be fitted as an aircraft store.

(b) ALSE can be considered as Safety ALSE (providing aircrew and passengers protection from environmental hazards during flight, survivable accident or incident, evacuation and post evacuation survival) and/or Mission ALSE (providing improved physical performance or functions necessary to support the achievement of an aircrew role). A frequent

Superseded

implementation of ALSE classified as both Mission and Safety is the helmet, which serves as safety equipment in the event of a crash while serving as mission equipment when supporting hearing and eye protection components, Night Vision Goggles (NVG), Lighting and other accessories. The categorisation of ALSE as Safety or Mission does not impact the applicability of standards prescribed within this chapter.

(c) **ALSE Ensemble.** An ALSE Ensemble consists of compatible equipment components that form an integrated ALSE solution that is worn by aircrew or passengers whilst performing duties primarily on-board the aircraft.

2.6. **ALSE Domains.** To support prescription of design requirements for the various types of ALSE, ALSLMU has defined 17 ALSE Domains. The Domains are defined to group similar types of equipment that are divided into 6 overarching categories. The following ALSE Domains are used:

(a) Head Protection

1. Helmets
2. Eye and Face Protection

(b) Inflatables

1. Life Preservers
2. Anti-G Suits
3. Life Rafts

(c) Load Carriage and Restraint

1. Carriers and Ensemble Integration
2. Hoisting Equipment
3. Out of Seat Restraint Systems
4. Ballistic Protection

(d) Post Evacuation Survival

1. Survival Aids
2. Thermal / Immersion Protection
3. Survival Kits and Rescue Packs

(e) Respiration

1. Oxygen / Smoke and Fumes Masks
2. Underwater Emergency Breathing

(f) Sensory Protection

1. Hearing Protection
2. Night Vision Systems
3. Chemical, Biological, Radiological and Nuclear (CBRN) Protection.

Superseded

2.7. As discussed above, Defence manages ALSE within a construct of 'ALSE domains'. To facilitate the technical assessment of ALSE required under ORO.40, these 'domains' have been used to establish which ALSE should be considered under the aircraft's type certification and which should not.

2.8. Note that before approval for use, all ALSE must be subject to technical evaluation to confirm that it meets relevant design requirements and, where applicable, integration requirements, regardless of whether the ALSE is certified as part of the aircraft's type design or not.

2.9. Certification of ALSE can often be a complex undertaking and, therefore, advice on the application of and compliance with design requirements is to be sought from ALSLMU as early as possible within the project lifecycle.

ALSE included within the aircraft's certified type design

2.10. Certification of this ALSE will occur via design approval conducted in accordance with the requirements of DASR 21, to demonstrate that the ALSE complies with the design requirements in this chapter and in other applicable sections of the DASDRM. Relevant ALSE design requirements will be documented in the aircraft's Type Certification Basis (TCB).

2.11. The ALSE domains that are included in the aircraft's certified type design are:

(a) life preservers

(b) life rafts

(c) survival aids

(d) respiratory

(e) night vision systems (integration requirements only)

(f) chemical, biological, radiological and nuclear (CBRN) protection (integration requirements only).

ALSE not included in the aircraft's certified type design

2.12. While only four of the seventeen ALSE domains are included within a Defence aircraft's certified type design (plus the two domains where integration requirements are included), equipment within the remaining domains must still be subject to a robust evaluation of its technical and operational capabilities to ensure that it can safely perform its function when required. Consequently, the Authority also prescribes design requirements for these ALSE domains.

2.13. For ALSE not forming part of the aircraft's certified type design, formal confirmation that the ALSE meets the relevant design requirements in this chapter is required to support ALSE approval per ORO.40.

2.14. The ALSE domains that are generally not included in the aircraft's certified type design are:

(a) helmets

(b) eye and face protection

(c) anti-G suits

Superseded

(d) carriers and ensemble integration

(e) hoisting equipment

(f) out of seat restraint systems

(g) ballistic protection

(h) thermal/immersion protection

(i) underwater emergency breathing

(j) hearing protection

(k) night vision systems (equipment design requirements only)

(l) CBRN protection (equipment/clothing design requirements only).

EXEMPTIONS

2.15. **Flying Clothing.** ALSE has a maintenance policy and requires regular servicing by qualified personnel. Hence flying clothing is not considered ALSE. For information regarding Flying Clothing, contact the Program Manager – Combat Clothing (position number 00460959)

2.16. **Parachute Systems.** The Standards DoSA-ALSE does not hold a delegation for parachutes. The ADF Parachute School should be contacted in the first instance for the design requirements of parachutes.

2.17. **Pyrotechnics.** ALSE Ensembles or survival kits routinely contain pyrotechnic signalling devices. Explosive Materiel Branch (EMB) are the SMEs for this type of equipment. For requirements for pyrotechnic signalling devices refer to the eDEOP101 – Department of Defence Explosives Regulations. For guidance or advice on this topic contact EMB via their group inbox; casglsdembcoordination@dpe.protected.mil.au.

2.18. **Oxygen Systems.** ALSLMU are the SME for oxygen masks, which interface with the aircrew and aircraft oxygen systems, these are covered within this chapter. However, this chapter does not cover aircraft oxygen systems forming part of a particular aircraft design, refer Section 3 Chapter 6 for further guidance.

GENERAL CONSIDERATIONS

2.19. ALSLMU is the SME for the scope of ALSE only; aircraft MAOs are responsible for ALSE integration with Defence aircraft. Each Defence aircraft type has been designed to comply with different standards and the integration of ALSE must be undertaken with cognisance of the suite of standards applicable to that type. The following paragraphs provide guidance to MAOs, CAMOs and SPOs on generic considerations for applying the prescribed ALSE design requirements in this chapter, to ensure that the extant aircraft design requirements are not compromised:

(a) **Configuration, Role and operating Environment (CRE).** Changes to a Defence aircraft's CRE can significantly influence the type of ALSE required and the design standards associated with the equipment. The standards prescribed within this chapter need to be applied with caution and tailored to suit the CRE of a particular platform. If any doubt exists the Standards DoSA-ALSE should be consulted for assistance with tailoring the application of standards.

Superseded

(b) **Crash Protection.** When assessing the suitability of crew-mounted ALSE, evidence of the head and body extremity strike envelopes within the crew stations/cockpits of the aircraft must be sourced. Within these envelopes, the aircraft's design must also identify where suitable energy absorbing padding materials, frangible breakaway panels, smooth contoured surfaces, or ductile materials should or have been used. These intrinsic aircraft design features, if incorporated, provide additional protection to aircrew members in the event of an accident, and may reduce the need to source ALSE designed to further reduce the risk of injury. In cases where a shortfall in the crash protection of a platform is determined, additional ALSE requirements may be defined to treat this shortfall. The ADF aircraft crash protection requirements are prescribed in DASR ARO.40 Aircraft Crash Protection. This requires at AMC ARO.40.A.3.c that ALSE carried by personnel should be risk assessed and treated in the context of Crash Protection (For example: is ALSE adequately restrained under crash loads to prevent it coming lose and injuring aircraft occupants? Does the ALSE impact crashworthy seat restraint systems?). The ADF Contemporary Crash Protection Design Requirements are detailed at Section 2 Chapter 6.

(c) **Evacuation.** The addition/modification of ALSE can influence the ability of survivors to effectively evacuate aircraft and survive post-evacuation. Therefore, when assessing changes to any ALSE ensemble, the effect on both evacuation and survival must be considered. Generally an aircraft's type certification basis will include requirements for emergency evacuation (e.g. FAR25.803) and ALSE should not impact compliance with these requirements.

ALSE DESIGN REQUIREMENTS

2.20. Design requirements for ALSE comprise of Standards and ADF unique requirements. ALSE standards rarely match the context of the proposed design and, consequently, simple compliance with a standard may not be adequate for Defence's intended use of the ALSE. The Defence aircraft's CRE must therefore be considered when evaluating ALSE for suitability and acceptability, as discussed at paragraph 2.19a. The following sections provide for General Requirements and considerations applicable to ALSE as well as Integration Requirements for the integration of ALSE components to form an ALSE Ensemble and the integration of an ALSE ensemble to an aircraft. All ALSE should be assessed against the General and Integration Requirements as well as the specific domain and any other requirements that are relevant from other domains.

GENERAL REQUIREMENTS

2.21. In the use of ALSE for Defence service the following requirements and considerations are to be applied:

2.22. **Design Requirement (Essential).** *The maintenance inspection requirements and serviceability limits must be identified and published in relevant maintenance instructions*

2.23. **Key Consideration.** The design and fit of ALSE should consider and meet the needs of the anthropometric measurements of all aviators including females.

Material Properties

2.24. **Design Requirement (Essential).** *Materials used in Carriers or other ensemble components used to secure ALSE in the ensemble (i.e. pouches and straps) must be made of UV light resistant materials. This requirement shall be verified by test of residual strength of materials following accelerated exposure to UV light equivalent to its expected service life.*

Superseded

(a) **Guidance Material.** Load bearing harness standards have particular requirements related to UV light resistance for primary load bearing webbing, refer to the related Hoisting Equipment or Out of Seat Restraint Systems domains for details. For other materials engage ALSLMU for guidance on the use of an appropriate standard for UV exposure testing.

2.25. **Design Requirement (Essential)**. *ALSE that is worn or stowed within an aircraft must be at least flame resistant.*

(a) **Guidance Material.** Where ALSE components have a similar form to components identified in FAR 25.853 and Appendix F to FAR Part 25 (e.g. ALSE harness or restraint webbing is similar to seat belts and shoulder harnesses) the relevant requirements must be applied. Where components are more similar to aircrew clothing a related standard for flame resistance testing for clothing, such as ISO 15025:2016, may be considered appropriate.

2.26. **Design Requirement (Essential).** All materials used in the manufacture of ALSE must not allow a build-up of static electricity or electrical charge.

(a) **Tailoring Advice.** The 'Material requirements' portion of BS EN 1149-5:2008 - Protective clothing-Electrostatic properties Part 5: Material performance and design requirements (or similar) can be used as guidance for testing if required.

Restraint Requirements

2.27. **Design Requirement (Essential).** *All ALSE components, or their means of restraint (e.g. pouch) to the carrier (or other means of attachment to the wearer) must be of sufficient strength to restrain the component under crashworthiness loads defined in the relevant aircraft(s) type certification basis or derived from the Section 2 Chapter 6 Contemporary Crash Protection Requirements.*

2.28. **Design Requirements (Essential).** *ALSE Ensemble components must remain securely restrained when subject to rotor wash and/or airstream associated with doors open operations.*

(a) **Guidance Material.** It may be suitable to adapt DEF STAN 05-134 Test 19 to apply relevant air blasts equivalent to rotor wash for rotary wing aircraft.

INTEGRATION REQUIREMENTS

2.29. In the production of ALSE designs suitable for Defence service, the equipment must be suitably integrated with the person, the aircraft and the remainder of the aircrew ensemble. ALSLMU are available to provide guidance on the suitability of ALSE and aircrew ensemble integration. The following requirements and considerations are to be applied:

2.30. **Design Requirement (Essential).** *ALSE must be integrated in accordance with DEF STAN 05-134.*

2.31. **Design Requirement (Essential).** *An ALSE Ensemble must be assessed using the test procedures of DEF STAN 05-134 Section 10 as applicable to the aircraft type.*

(a) **Tailoring Advice.** Where an ALSE Ensemble is not intended to be worn for the duration of the flight the assessment of DEF STAN 05-134 para 10.3.1, Test 1: Dressing and Undressing should also be made during flight to ensure the Ensemble can be efficiently donned / doffed during flight.

(b) **Guidance Material.** Other sections of DEF STAN 05-134 are very specific to the UK MoD organisation and should not be applied.

Superseded

2.32. **Key Consideration.** The ALSE integration testing requirements of DEF STAN 05-134 Issue 1 Paragraph 10 will ensure that the ensemble suitably integrates together and with the aircraft on which it is being used. To ensure a successful outcome it is important that the purpose and assessment criteria of the various testing is understood and applied during the design of the ALSE Ensemble.

2.33. **Key Consideration.** During the assessment of an ALSE Ensemble using the testing program of DEF STAN 05-134 the risk assessment worksheet for Hazardous Manual Tasks from the Workplace Health and Safety (Hazardous Manual Tasks) Code of Practice 2015 should be used to identify any issues where the ALSE Ensemble may contribute to Musculoskeletal Disorders that will need to be managed. This may include identifying changes in design of the ALSE Ensemble to eliminate or mitigate such issues SFARP during its development.

2.34. **Key Consideration.** An ALSE Ensemble should have the ability to adjust the configuration to suit the operational role and environment to balance the hazards associated with weight and bulk of equipment during wear against the threats that the ALSE provides protection against during or following an emergency landing / ditching or crash.

2.35. **Key Consideration.** An ALSE Ensemble and Carrier design should provide for tactile feel for the identification and operation of securing hardware to allow for access to components that are located out of line of sight or in reduced light / visibility environments.

2.36. **Key Consideration.** Prior to ALSE being introduced to service, it should be assessed on each platform for snagging hazards which may cause the wearer to become trapped inside a sinking or burning aircraft. Assessments should consider emergency egress in any direction to and from an emergency exit, as Rotary Wing Aircraft in particular have a tendency to roll inverted following a ditching.

DOMAIN REQUIREMENTS

2.37. The following Sections present the prescribed ALSE requirements and Standards for each ALSE Domain.

HEAD PROTECTION DOMAINS

Helmets Domain

2.38. A helmet is usually a safety device to protect the head of aircrew and passengers from dangerous impacts during a potentially survivable crash. The helmet's function is achieved with a combination of materials to both prevent penetration and absorb energy in such a way as to reduce damage from excessive accelerations caused by impacts to the head. Helmets also lower the risk of head injury during ejection and provide protection against windblast, rotor wash and debris in an aircraft during operations. Helmets may also be used as a platform for hearing protection, eye protection, communications equipment and other mission equipment.

2.39. The use of helmets and the selection of impact protection requirements must be done holistically within the aircraft design. Elimination or minimisation of risks so far as is reasonably practicable (SFARP) by means other than a helmet, should be assessed prior to selecting a helmet for use. For example, modification may be possible to the aircraft to prevent head injuries. It should be noted that many fixed and rotary wing aircraft are certified for use without helmets so mission function may be the driving factor in helmet selection.

Superseded

2.40. A requirement to wear an aviation helmet might conflict with requirements to wear head protection to address different hazards, such as a ground combat ballistic helmet. In such circumstances a decision regarding the wearing of a helmet compliant with the requirements in this chapter, or an alternate helmet, must be guided by the principle of eliminating or otherwise minimising hazards to personnel SFARP.

2.41. The decision to use helmets and the selection of a helmet must be steered by the crash protection properties of the aircraft in which it is employed and the nature of the duties of the wearer. There will always be a trade off with the desirable properties of a helmet. For example, a lightweight helmet is always desired to reduce musculoskeletal (MSK) injuries; however, increased impact or ballistic protection will be accompanied by an increase in helmet mass.

Note

2.42. The requirements in this chapter are applicable to crash helmets only. Currently there are no applicable standards for lower impact head protection. Guidance material for lower impact head protection are mentioned at the end of this document. As of 2021, ALSLMU are investigating requirements of aviation helmets for use as a multi-fit passenger type helmet in collaboration with 5 eye nation's. For additional information contact the ALSLMU head protection SME.

2.43. The helmet section is to be read in conjunction with the General requirements, eye and face protection and Sensory domain's (Hearing protection).

General requirements that apply to all helmets

2.44. **Design Requirement (Essential).** *The helmet must meet the requirements of AS/NZS 1698:2006, or ECE 22.06.*

2.45. **Tailoring advice.** Amend requirement 5.8 (visors) to read 'eye and face protection section of this DASDRM chapter' in lieu of 'AS 1609'.

2.46. **Tailoring advice.** Requirement 7.1 (test sequence) solvent conditioning must be carried out.

2.47. **Tailoring advice.** Requirement 7.5 (resistance to penetration) test is only required when deemed necessary by the platform MAO.

2.48. **Tailoring advice.** Requirements 8 and 9 (marking and instructions for use and care) must be tailored in conjunction with the acquisition agency prior to introduction to service through the OEM.

2.49. **Design Requirement (Essential).** *The helmet must limit the peak head-form acceleration to 190G when tested IAW AS/NZS 1698:2006 using a flat anvil impact with the centre of the ear cup.*

2.50. **Design Requirement (Essential)**. *The helmet must limit the average head-form acceleration to 175G when tested IAW AS/NZS 1698:2006 using a flat anvil impact with the centre of the ear cup.*

2.51. **Guidance Material.** The previous two requirements are in addition to the testing in section 7.4 of AS/NZS 1698:2006, however the same methodology should be followed.

2.52. **Design Requirement (Essential) – one handed doffing.** *The fitting and retention system of a helmet must be designed such that a wearer can doff the helmet with one hand*.

2.53. **Design Requirement (Recommended).** *The mass of the helmet should be limited to 2.27 kg (5 lb).*

2.54. **Guidance Material.** Helmet weight is a contributing factor to fatigue and MSK injuries. Excessive weight can also increase neck loading and the impact energy of a head impact in a crash event. Care should be taken not to over specify other helmet attributes such as impact protection. A

Superseded

helmet should be selected to be as light as possible while providing the required level of protection. The target maximum mass includes the visors, sound attenuation and communication equipment, NVG's and any accessory to be mounted to the helmet. Consideration should also be given to the frequency and magnitude of high acceleration flight.

2.55. **Guidance Material.** A helmet which is optimised to protect a wearer from an impact of a magnitude which would be expected to cause a concussion or Mild Traumatic Brain Injury (mTBI) must be selected to protect the user from the higher magnitude of potential impacts. Consideration should be given to the CRE and the potential impacts that the helmet is to protect against. Consideration should be given to the member remaining conscious to survive post-crash events (e.g. smoke, fire, sinking aircraft, enemy action), which may occur some distance from emergency services and rescue.

2.56. **Key Consideration – centre of gravity (CoG).** The centre of gravity of a head and helmet is a more significant factor to aircrew fatigue and in flight performance, as well as being a key contributor to neck and back MSK injuries, than helmet weight. The helmet CoG should be as close to the top of the wearer's spine as possible and should be considered in the context of the aircraft's CRE. For example, the frequency and duration of high G loads or personnel moving around the aft of a helicopter while leaning over.

2.57. **Key Consideration – rigid protrusions and accessories.** Helmets with rigid protrusions or mounted accessories can impart an angular acceleration to the head in the case of a head impact, increasing the chance of traumatic brain injuries. A large or oddly shaped helmet can also impede emergency egress. Helmets should be as small and as form fitting to the head as can be achieved whilst fulfilling their function. A helmet with a long radius of gyration can also contribute to neck injury, especially during an ejection. Consideration should also be given to external accessories mounted on a helmet causing a force concentration on the helmet during a crash event, with the increased pressure causing the accessory to penetrate the helmet.

2.58. **Key Consideration – helmet penetration and tearing.** An assessment of the crashworthiness of the aircraft and the role of the aircrew within it should be carried out to determine if there is a risk of helmet penetration or tearing during a survivable crash.

2.59. **Key Consideration – environmental qualification.** The operating environment of the aircraft should be used when considering the environmental qualification of the helmet. Consideration should be given to (but not limited to) temperature, humidity, ultraviolet radiation as well as exposure to fresh and salt water, dust and sand. Exposure to variations in environmental conditions may have a significant bearing on the life expectancy and level of protection the helmet affords. The selected temperature ranges should influence the hot and/or cold soaking requirements during testing, as these temperatures may alter the energy attenuation properties of the helmet materials.

2.60. **Key Consideration – helmet coverage and field of view.** The requirement for protection for the entirety of the head, including the face, should be considered when selecting a helmet. The amount of coverage should be balanced with any restrictions to the field of view, which may result in reduced crew situational awareness and increased workload. Restrictions to the field of view are undesirable.

2.61. **Key Consideration – human thermal performance.** The effect of ambient atmospheric conditions on the person wearing the helmet should be considered. This includes the effect of hot and cold injuries through ambient temperature and wind chill e.g. for example flying with open doors.

2.62. **Key Consideration – mission equipment.** Helmets may require incorporation of other features to enhance mission performance. These features should not degrade the crash protection of the

Superseded

helmet unless a safety case shows that a feature of the helmet that impacts crash protection attributes reduces a more serious risk SFARP. Such mission features include a 'hear through' function for communicating with persons not connected to communications system e.g. passengers prior to boarding the aircraft or night vision equipment.

2.63. **Key Consideration – ballistic protection.** Consideration should be given to whether the helmet is required to provide ballistic protection. This requirement should be balanced with the risk of MSK injuries from a heavier armoured helmet.

2.64. **Key Consideration – evaluation of aircrew helmets**. Air Standard ASMG 4041 Evaluation Procedures for Flight Helmets provides information on the type of data that should be collected when evaluating candidate aircrew helmets. This may be of use to acquisition projects.

2.65. **Key Consideration – durability.** A helmet which is used in an environment where it is likely to be subjected to many low velocity impacts (minor head knocks or bumps), such as a mobile aircrew's helmet used in a platform where the wearer is required to stoop to move around a cabin or cargo, should be sufficiently resistant to these impacts to maintain its impact protection properties and/or reduce the mission capabilities of the helmet e.g. damage visors or accessory mounts.

2.66. **Key Consideration – crash Protection.** The crashworthiness and inherent crash protection of the aircraft should be considered when identifying head protection to be used. The intrinsic aircraft design features, if incorporated, provide additional protection to aircrew members in the event of an accident, and may reduce the need to source ALSE designed to further reduce the risk of injury.

Additional Fixed Wing Ejection Seat Requirements

2.67. **Design Requirement (Essential).** *The helmet must be capable of maintaining facial and head protection during the ejection sequence.*

2.68. **Design Requirement (Essential).** *The helmet must be tested with all possible equipment configurations, i.e. all accessories/mounted equipment installed.*

2.69. **Guidance Material.** Air Standard ASMG 4041 Evaluation Procedures for Flight Helmets provides guidance on how to conduct ejection seat windblast testing. The velocity of the windblast should be selected based on the operating envelope of the aircraft. Consideration should be applied to unplanned ejections at abnormal e.g. high velocities, not just the aircraft's certified ejection velocities. Facial protection includes protection from windblast and debris produced during the ejection sequence.

Additional Fixed Wing Non-Ejection Seat Mobile Aircrew Considerations

2.70. **Key Consideration.** Consideration should be given in the helmet design for these aircrew to receive low velocity head impacts caused from moving around the aircraft and cargo while in flight. These aircrew may also experience multi axis impacts during survivable crash sequences due to the crew not always being secured in a crashworthy seat.

Additional Rotary Wing Considerations (all helicopter occupants)

2.71. **Key Consideration.** Consideration should be given in the helmet design for occupants to receive low velocity head impacts caused from moving around the aircraft and cargo while in flight. Occupants may also experience multi axis impacts during survivable crash sequences due to the occupants not always being secured in a crashworthy seat. They may also be required to rapidly escape a sinking helicopter.

Utility style Head Protection

Superseded

2.72. These helmets are typically designed to protect the wearer from non-crash loads e.g. low velocity impacts with cargo and airframe components, while enabling other mission functions e.g. ability to swim or treat patients. These style helmets may be desired when operational risks and functions outweigh the requirement for crash protection. This assessment should be made when holistically assessing the risks associated with the platform and mission e.g. there may be a mission risk that requires minimisation ahead of a more remote risk of aircraft crash. It should be noted that some aircraft are certified to not require helmets for crash protection. In these cases this style of helmet may be sufficient to eliminate or otherwise minimise other mission related risks SFARP.

2.73. **Key Considerations.** The platform CRE must be considered for the application of the passenger helmet to be used. For example, a safety helmet chosen for operations on rotary wing 'down the wire' may be made to a higher specification than a Kevlar/bump style helmet used on fixed wing transportation flights.

2.74. **Guidance Material.** Children may be required to fly on board during Defence assistance to the civil community tasking or 'family day' tasking. Head protection sizes should accommodate children.

Eye and Face Protection Domain

2.75. **General Eye Protection.** Eye and Face Protection provides aircrew with protection from windblast, high light intensity, UV, spall resulting from canopy or windscreen failure, ballistic / fragmentation threats, and dust and debris from rotor or jet wash. The following requirements have been identified as general requirements which are to be applied to all eye and face protection equipment as applicable.

2.76. **Design Requirement (Essential).** *AIR STD ASMG 4079 "The Optical And Material Requirements for Aircrew Helmet Visors" must be met for all visor systems*

2.77. **Design Requirement (Essential).** AIR STD 61/113/14A "The Optical And Material Requirements for Aircrew Plano Sunglasses" must be met for all glasses.

2.78. **Guidance Material.** Spectral transmittance requirements may be difficult to meet, particularly in untinted lenses. Lenses must meet the target values as closely as possible to minimise the chance of eye damage in the long term.

2.79. **Guidance Material.** Impact resistance requirements for "Extra High Impact Resistance" protection contained in AS/NZS AS/NZS 1337.1:2010 may be used in lieu of the requirements outlined in the AIR STDs.

2.80. **Design Requirement (Essential)** *Section 3 of AS/NZS 1337.1:2010 including Amendments 1 and 2, relating to assembled eye and face protectors must be applied to all eye and face protectors.*

(a) **Guidance material.** Special performance requirements as per section 3.3 are to be applied as required dependent on the use case of the protector in question.

(b) **Guidance material.** Where requirements are included in both AS/NZS 1337.1:2010 and the applicable AIR STD, the more stringent of the two must be applied.

2.81. **Key Considerations** The following considerations should be taken into account when assessing any eye and face protection equipment.

(a) Applicable considerations from AS/NZS 1336:2014 should be applied. Particularly advice relating to the management of fogging and perspiration

Superseded

(b) Various shades of tint are available for both visors and sunglasses, appropriate levels should be assessed where possible in order to maximise user comfort and visibility.

(c) Dual visor systems should be easily switched between a clear and tinted visor with one hand in order to manage changing conditions.

2.82. **Laser Protection.** Laser energy is highly focussed and designed to traverse long distances, and is therefore potentially hazardous to the human eye; more so when emitted at a wavelength invisible to the eye, rendering the eye unable to react normally. Laser protection should be tailored to the application and expected laser threats. Threats range from dazzling through to permanent damage of the eye. The method of eye protection chosen against laser light should not degrade or impact upon the function of other eye related systems therefore all general requirements must be met.

2.83. **Design Requirement (Essential).** *Laser eye protection must limit exposure to known threats to within the Maximum Permitted Exposure limits defined in AS 2211.9:2002 (R2014) for wavelengths between 300nm and 3000nm.*

2.84. **Design Requirement (Recommended).** *Requirements 3.1 through 3.3 of AS 1337.4:2011 should be applied to the maximum possible extent.*

2.85. **Key Considerations.** The following considerations should be taken into account when assessing laser eye protection

(a) Section 6 of AS/NZS 1336:2014 outlines considerations that must be made in order to minimise the risk of laser radiation

(b) Laser protection will generally reduce visible light for the wearer, this may be an issue particularly at night.

(c) Filters designed for protection against laser threats are generally designed in such a way that they only cater to a very narrow selection of wavelengths. These must be selected based on risk analysis of known and probable threats.

2.86. **Face Protection.** Protection for the lower face is also available in the form of a shield that reduces wind on the face and provides impact protection.

2.87. **Design Requirement (Essential).** *The requirements pertaining to "Extra High Impact Resistance" protection contained in AS/NZS 1337.1:2010 must be applied as a minimum to any face shield.*

2.88. **Key Considerations.** The following considerations should be taken into account when assessing face protection:

(a) Face protection should not allow breathing gasses to escape in a manner that causes fogging of any visor or spectacles that are used in conjunction with the face protection.

(b) Face protection must be rapidly removable to allow the use of underwater emergency breathing devices and other safety systems that cover the mouth and face.

Anti-G Suits

2.89. Anti-G Suits are designed to counteract the effects of acceleration on aircrew, which can impact on their survival or ability to perform tasks. The pressurised abdominal and leg bladders aim to support an adequate blood supply to the upper body and head when a person is subject to positive G forces. This counteracts the pooling of the blood from the head and chest into the lower part of the

Superseded

body under high positive G forces which will help preserve circulation, visual acuity and mental alertness until level flight is resumed.

2.90. Some contemporary Anti-G suits incorporate features to assist the wearer in breathing high pressure gasses or to provide protection against exposure to very low air pressure environments. Such features are beyond the scope of this section. Advice should be sought from ALSLMU prior to using such equipment on ADF aircraft.

2.91. **Design Requirement (Recommended).** *Anti-G suits should be subjected to scheduled fit checks on the assigned wearer, by a suitably qualified person.*

2.92. **Design Requirements (Recommended).** *Anti-G suits should be subjected to pre-flight functional and/or leak checks.*

(a) **Guidance Material.** The preferred method of compliance is to conduct a functional check which can be conducted in an aircraft with the wearer of the suit strapped in such that the suit is integrated to the aircraft. If a pre-flight check in a carrying aircraft is not feasible, then a functional and/or leak check should be conducted when the suit is donned.

2.93. **Key Considerations.** The following key considerations should be made when introducing Anti-G suits to ADF service:

(a) An Anti-G suit with greater coverage of the wearer will tend to offer superior protection against G forces, whilst an Anti-G suit with a larger total bladder volume will inflate more slowly. High coverage and rapid inflation are both desirable properties of an Anti-G. These characteristics should be considered and optimised for the intended configuration, role and environment of the user.

(b) The use of 'pull away' quick release connectors for the interface between an aircraft and an Anti-G suit are considered desirable for the purpose of rapid emergency egress, but an inadvertent disconnection in flight could contribute to a G Induced Loss of Consciousness (G-LOC) event. The selection of an interface connector should consider both emergency egress and the security of the connection.

(c) The wearer of an Anti-G suit should conduct activities such as the Anti-G Straining Manoeuvre (AGSM) to resist the effects of G forces. Different Anti-G suit designs afford varying levels of protection against G forces and caution should be applied when transitioning from a design with a high level of protection to one with lesser protection. The wearers AGSM activities should be matched to the assistance provided by the suit. Effective conduct of an AGSM with a particular Anti-G suit design requires substantial practice and conditioning. For this reason, care should be taken when considering any finding of equivalence between the function and performance level of different Anti-G suit designs.

(d) The failure of an Anti-G suit could contribute to a G Induced Loss of Consciousness (G-LOC) event. The reliability of an Anti-G suit should be considered in terms of the suit making up part of the carrying aircraft's Anti-G system.

Life Preservers

2.94. Life preservers provide individuals with floatation support whilst in the water following a survivable aircraft ditching. They have inflatable buoyancy chambers to minimise bulk during normal operations and may incorporate survival aid stowage as part of the assembly. The type of life preserver used is highly dependent on the CRE of the host aircraft and the personnel that it is intended for including aircrew and passengers (combat/noncombat).

Superseded

Constant wear life preservers

2.95. **Design Requirement (Essential).** *Constant wear life preservers must comply with the requirements of DEF(AUST) 9202.*

(a) **Tailoring advice.** Replace the second sentence of paragraph 2i of AIR STD ASM 4065 Ed1v3 as follows: "The life preserver must accommodate the full anthropometric range of the user population wearing standard flight clothing and applicable personal survival equipment".

Non-constant wear life preservers

2.96. **Design Requirement (Essential).** *Non-constant wear life preservers must comply with the requirements of TSO-C13g.*

General life preserver requirements applicable to all life preservers

2.97. **Design Requirement (Essential).** *Life Preservers for Rotary Wing aircraft applications must only use manually activated inflation devices and be inflated by the wearer following egress from the aircraft so that the buoyancy of an inflated life preserver does not trap them within a sinking aircraft.*

2.98. **Design Requirement (Essential).** *Life Preservers for ejection seat aircraft must use automatically activated inflation devices that automatically inflate once in the water to account for the possibility of unconsciousness following the ejection sequence.*

2.99. **Design Requirement (Essential).** *The life preserver must be fitted with a pea-less whistle unless the life preserver is for an infant. The whistle must be secured by a cord to the life preserver.*

2.100. **Design Requirement (Essential).** *The life preserver in the inflated mode must not hamper ingress to single or multi-seat life rafts.*

2.101. **Design Requirement (Essential).** *All inflatable life preservers must use dual chamber buoyancy systems to provide redundancy for damage or failure of one chamber.*

2.102. **Design Requirement (Recommended).** *The buoyancy afforded by a life preserver should consider the additional equipment weight carried by the wearer (e.g. fully loaded combat passengers).*

2.103. **Design Requirement (Recommended).** *Life preservers should be protected against inadvertent inflation.*

2.104. **Design Requirement (Recommended).** *A life line and toggle should be fitted to the life preserver. Where fitted, the life line must have a minimum breaking strain of 45 kg and be approximately 1 metre in length. The life line and toggle are to be stowed within easy reach of the wearer.*

(a) **Guidance Material.** This requirement provides a means for survivors to tether themselves together if they are in the water and do not have a life raft (e.g. survivors could not remove the life raft from a sinking helicopter).

2.105. **Design Requirement (Recommended).** The life preserver should be compatible with helicopter rescue hoisting operations.

2.106. **Key Consideration.** DASDRM Section 2 Chapter 6 Annex A should be referenced for guidance on life preserver stowage on aircraft and quantity of life preservers required.

2.107. **Key Consideration.** The requirement for infant and child life preservers should be assessed during the procurement process based on the expected role of the aircraft.

Superseded

2.108. **Key Consideration.** The MAO should consider if subsurface buoyancy is required for the life preserver application.

2.109. **Key Consideration.** Civilian passengers may not be fluent in English language and/or may not be able to read English which may cause difficulties for the passengers accessing and using the life preserver.

Life Rafts

2.110. Life Rafts provide for survivability of one or more people after an aircraft evacuation over water, or dropping from an aircraft to survivors in the water during Search and Rescue operation. Once boarded, life rafts increase survivability by isolating survivors from the water and providing shelter from the environment. Life raft designs must cater for Defence's survivability needs ranging from hours to days of life support, incorporating communication and rescue aids, rations and water treatment systems where warranted.

2.111. Life Rafts and their components must comply with ALSE General Requirements as well as the following standards as relevant to the specific Defence aircraft installation, considering recommended requirements and guidance material listed.

Life Raft Equipment

2.112. **Design Requirement (Recommended).** The following life raft specific survival aids are strongly recommended as inclusions with all life rafts.

(a) at least one buoyant bailer.

(b) a pair of buoyant paddles (note: not appropriate for larger life rafts).

(c) an efficient radar reflector or a radar transponder.

(d) anti-nausea medication and sick bags for all on board the life raft.

Multi-seat life rafts

2.113. **Design Requirement (Essential).** *Life rafts must comply with TSO-C70b.*

2.114. **Design Requirement (Recommended).** *Life rafts should consider fitment/use of the following recommended features:*

(a) *Life Raft lights should have batteries (or battery and Light units) that are replaceable without the use of adhesives.*

(b) *Attachments should be provided to keep the entrance covers open (the life raft should be packed in this position if a self-erecting canopy is fitted).*

(c) *The total seating space should be insulated by an inflatable floor. When a removable mattress type is supplied, tie down points to attach the mattress to the life raft floor should be added.*

(d) *The floor should be fitted with Inflate/Deflate valves that are compatible with the Life Raft Topping-up valves and the Life Raft Hand pump. When a mattress type inflatable floor is supplied, the upper side centre of the floor (when installed) should be stencilled with 40 mm high lettering 'INFLATABLE FLOOR'.*

(e) *The life raft should provide sufficient air for the occupants at all times, even with the entrances closed.*

(f) *The life raft should contain a viewing port.*

Superseded

(g) *Where the life raft has multiple entrances, best practice is to have at least one entrance provided with a 'boarding ramp', with other entrances using a 'boarding ladder' style boarding aid. The boarding ramp should not cause life raft deflation if it becomes damaged and the lowest step of the boarding ladder should be .4 m below the life rafts waterline.*

(h) *Have an automatically deploying sea anchor or a labelled reminder for the occupant to deploy the sea anchor.*

2.115. **Design Requirement (Recommended).** *Life rafts which can be externally mounted and deployed remotely should be used in preference to internally installed life rafts which require physical effort to deploy. Internally installed life rafts should have unobstructed access from the inside of the aircraft and that of the ditched position.*

(a) **Guidance Material.** Life rafts should be deployable from three locations being in reach of the flight crew, occupants of the passenger cabin and survivors in the water with the aircraft floating in the ditched/capsized position.

2.116. **Design Requirement (Recommended).** *Life rafts should be equipped with two retaining lines to be used for securing the life raft to the aircraft, one short line and one long.*

(a) **Guidance Material.** A short line holding the life raft close enough for occupants to enter the life raft directly without entering the water which is then cut leaving the life raft attached to the aircraft by the longer retaining line which should allow the life raft to float at a safe distance away from the aircraft.

2.117. **Guidance Material.** Aircraft should have a minimum of two life rafts with sufficient overload capacity to account for the loss of the largest life raft.

2.118. **Guidance Material.** Consideration should be given to whether additional capacity within the life rafts is required to account for operationally kitted aircrew.

2.119. **Guidance Material.** Weight and space permitting, consideration should be given to increasing the puncture resistance of the life raft if it is located in close proximity to an area of the aircraft which is likely to have jagged edges following a water landing/ditching.

2.120. **Guidance Material.** Consideration should be given to whether there are entanglement possibilities from lines/boarding ladders which could trap a person while righting the life raft during a new life rafts introduction to service.

Multi-seat life raft compressed cylinders

2.121. **Design Requirement (Essential).** *Compressed cylinders which have been discharged, immersed in water, visually appear corroded, out of limits or damaged and will (or have) exceeded the 5 years since hydrostatic test must be returned for inspection, testing and refilling. Facilities conducting the work must satisfy the requirements of AS 2337.1 for Gas Cylinder Test Stations, Part 1: General Requirements, Inspection and Tests–Gas Cylinders.*

2.122. **Design Requirement (Essential).** *Recharging and reconditioning, internal and external inspection and testing of Inflation System Compressed Cylinders must comply with AS 2337.1.*

2.123. **Design Requirement (Essential).** *Each cylinder must be charged with the required weight of CO2 and N2 as applicable by the type of cylinder, to within the limits as specified by the manufacturer. CO2 used must conform to BB–C–101, Grade B. Where additional pressure to expel CO2 at lower*

Superseded

temperatures is required, cylinders must have added Dry N2 conforming to A–A–59503, Type I, Grade B, Class 1.

2.124. **Design Requirement (Recommended).** *Painting of the compressed cylinder should be done in accordance with MIL-STD-1411A. The threaded portion of the neck of the cylinder should not be painted.*

2.125. **Design Requirement (Recommended).** *Cylinders fitted with syphon tubes should have the type of syphon tube clearly stencilled in 12 mm lettering, in Black Cellulose Lacquer conforming to A–A–3165, longitudinally on the body of the cylinder, as* applicable.

Single seat life rafts

2.126. **Design Requirement (Essential).** *Life rafts must comply with DEF(AUST) 9203.*

2.127. **Design Requirement (Essential).** *Inflation compressed cylinders must comply with MIL-PRF-25369D(1).*

LOAD CARRIAGE AND RESTRAINT DOMAINS

Carriers

2.128. Carriers form the basis of an ALSE Ensemble in that they provide a platform to which various ALSE can be attached. Carriers take two forms a vest (for non-load bearing applications) or harness (for load bearing applications for restraint / hoisting). Selection of a carrier requires consideration of the requirements of the wider ensemble and the need for restraint/ hoisting capability.

2.129. Design Requirement (Essential). *A carrier must be designed to restrain the load of any ALSE component or combination of components intended to be attached to it simultaneously under relevant crashworthiness loads defined in the relevant aircraft(s) type certification basis or derived from the Section 2 Chapter 6 Contemporary Crash Protection Requirements.*

(a) **Guidance Material.** Where a Harness is required any relevant Out of Seat Restraint or Hoisting Equipment requirements should be applied from the respective Domains.

Hoisting Equipment

2.130. Hoisting Equipment is considered as any equipment that is connected to a rotary wing aircraft's hoist for the purposes of deploying and recovering personnel to/from the aircraft during flight. This ALSE domain includes but is not limited to harnesses, strops, baskets, seats and stretchers. This ALSE domain does not include the aircraft hoist, cable or hoist hook.

2.131. **Design Requirement (Essential).** *Harnesses must meet the requirements of ATSO-C1003 or TSO-C167 as tailored below:*

(a) Para 3 (1) of ATSO-C1003 should refer to AS/NZS 1891.1:2020 and use the applicable sections for Full Body Harness.

(b) Para 3 (3) of ATSO-C1003 shall refer to Section 2.2.3 of AS/NZS 1891.1:2020 instead of 4.2.3 of AS/NZS 1891.1:1995.

(c) Para 3 (4) of ATSO-C1003 shall refer to Section 5.1 paragraphs c, f, g, h of AS/NZS 1891.1:2020 instead of 5.1 of AS/NZS 1891.1:1995.

Superseded

(d) Para 3 (5) of ATSO-C1003 provides dispensation from permanently marking harnesses with a maximum allowable free fall as required by AS/NZS 1891.1:1995. This dispensation still applies to harnesses; however, AS/NZS 1891:2020 does not include this requirement.

(e) Para 3 (6) of ATSO-C1003 refers to Static Tests for Lanyards. These tests are not applicable to harnesses.

(f) Dynamic testing of harnesses must be performed as per AS/NZS 1891.1:2007 Appendix D.

2.132. **Guidance Material.** ATSO-C1003 is no longer a stand-alone document. It was moved to CASR Part 21 Manual of Standards (MOS). Latest revision of MOS is dated 30 Nov 17.

2.133. **Design Requirement (Essential)**. *Rescue Strops must meet the requirements of ATSO-C1003 as tailored below:*

(a) In reference to Para 3 (2) of ATSO-C1003, use the applicable sections in the AS/NZS 1891.1:1995 standard for "Retrieval Strap" testing. General, webbing and attachment hardware requirements used in the Strop shall be as required for harnesses in AS/NZS 1891.1:2020.

(b) Para 3 (3) of ATSO-C1003 shall refer to Section 2.2.3 of AS/NZS 1891.1:2020 instead of 4.2.3 of AS/NZS 1891.1:1995.

(c) Para 3 (4) of ATSO-C1003 shall refer to Section 5.1 paragraphs c, f, g, h of AS/NZS 1891.1:2020 instead of 5.1 of AS/NZS 1891.1: 1995.

(d) Para 3 (5) of ATSO-C1003 shall refer to Section 5.2 of AS/NZS 1891.1:2020 instead of 5.2 of AS/NZS 1891.1:1995.

(e) Para 3 (6) of ATSO-C1003 refers to Static Tests for Lanyards. These tests are not applicable to rescue strops.

2.134. **Guidance Material.** ATSO-C1003 is no longer a stand-alone document. It was moved to CASR Part 21 Manual of Standards (MOS). Latest revision of MOS is dated 30 Nov 2017.

2.135. **Design Requirement (Essential).** *Hoisting equipment other than rescue harness/strops must meet the applicable requirements of NFPA 1983:2017 and ATSO-C1003 Paragraphs 3(8) and 3(9).*

2.136. **Design Requirement (Essential).** *A Rescue Strop must be buoyant for maritime operations.*

2.137. **Design Requirement (Recommended).** *The Rescue Strop should be a bright colour to enhance conspicuity during rescue.*

2.138. **Tailoring Advice.** This requirement is deemed recommended since there may be cases where a strop is required for Combat Search and Rescue (CSAR) operations where bright colours are not suitable.

2.139. **Design Requirement (Recommended).** *Where likely to be used for hoisting of hypothermic patients a Rescue Strop should incorporate a Hypothermia strap (a secondary strap placed under the knees of the hoistee for a semi-recumbent position).*

2.140. The current version of FAR 29.865 is Amendment 29-43. Advisory Circular AC29-2C contains detailed guidance at AC29-865B. Within FAR 29.865 Harnesses, Rescue Strops (along with other Personnel carrying devices) are collectively referred to as Personnel Carrying Device Systems (PCDS). The following sections are considered applicable to PCDS:

Superseded

(a) FAR 29.865(a) The requirement for PCDS to be shown by analysis, test or both to withstand limit static load to a load factor of 3.5 or some lower factor not less than 2.5. AC29.865B provides guidance at paragraph d.(6) and in particular d.(6)(ii)(B) for Human External Cargo. Sub-Para (1) provides for a static analysis to show compliance if a safety factor of 3.0 is applied. Sub-Para (2) identifies use of a conservative load factor of 3.5g or substantiated lower factor not less than 2.5g and Sub-Para (3) identifies the use of a 101kg person as the minimum weight however a note indicates additional equipment weight should be included. In the ADF context it is not uncommon for Aircrewmen with equipment and wet to weigh 150kg. Using these values gives a static load of 150 kg x 9.81 m/s2 x 3.0 x 3.5 = 15.5kN. Given that it is not expected that the helicopter would intentionally operate anywhere near the conservative 3.5g load factor during hoisting operations it is calculated that a load factor of 3.39 (equating to 15kN) would suffice. It is therefore considered that the static load testing of the Harness or Rescue Strop to AS/NZS1891.1 requirement of 15kN will satisfy this requirement.

(b) FAR 29.865(c) (2), these requirements are considered to be satisfied by a Harness or Rescue Strop that meets the tailored requirements of ATSO-C1003 or TSO-C167.

(c) FAR 29.865(c)(3), these requirements for placards/markings for operating, ingress and egress instructions are likely to have been met by requirements of either ATSO-C1003 and AS 1891.1:2007 or TSO-C167 and its reference standards.

(d) FAR 29.865(f), this requirement is for fatigue evaluation in accordance with FAR29.571 to be applied to the PCDS. Guidance at AC29.865B paragraph d.(6)(vi)(B) indicates analysing the PCDS component by component to determine fatigue critical components to be subject to analysis or test to determine fatigue life limits. As it is difficult to analyse the fatigue response of webbing and material type harnesses and strops one approach considered suitable by the Standards DoSA-ALSE would be to conduct cycle testing of the entire PCDS system based on the critical load factors (excluding the safety factor used for ultimate load) and make a determination of the number of hoisting cycles likely to be experienced by the PCDS during its life. Using a weight of 150kg and conservative load factor of 3.5g the fatigue cycle load to be used would be 150kg x 9.81 m/s2 x 3.5) = 5150N. Generally Harnesses and Rescue Strops are have a service life of 10 years (unless otherwise substantiated) so using this and the number of hoisting cycles the equipment is expected to be used (under load) a number of cycles can be determined for testing.

2.141. **Key Considerations.** The following key considerations should be made when introducing hoisting equipment:

(a) Rescue Strops are designed for ease of donning whilst in the water but do not provide the safest option for restraint during hoisting. Strops require the hoistee to hold their arms down to maintain restraint. It is possible if the arms are lifted that the hoistee may fall from the restraint which is known to have occurred in the event of a hoistee becoming unconscious (refer ATSB Aviation Occurrence Investigation Report AO-2013-136). Prior to a Rescue Strop being used the following considerations should be made:

1. whether life is at imminent risk
2. the state of the person to be winched, particularly whether the winchee will remain conscious and coherent during the winch process
3. the potential for the person to remain compliant with winching brief
4. alternative methods and devices to recover the person

Superseded

5. whether the risk of falling from the device would not result in further serious injury or death.

(b) Rescue Strop design or operating procedures should prevent a survivor from slipping through the rescue strop during winching. It should be considered if any additional design features for a Rescue Strop such as arm straps (to help hold arms down over the strop), crotch straps, self-securing systems and anti-slip materials to prevent slipping from the Rescue Strop are suitable for the application's Configuration, Role and Environment.

(c) Use of a Rescue Strop with hypothermic strap is considered a safer option compared to a single under arm strop, especially with heavier winchee's or those who may have pre-existing heart-related medical conditions, or suffering hypothermia.

(d) Rescue Strops should be chosen as a 'last resort', in favour of using extraction devices which will not allow the winchee to fall out. Additionally, best practice is using strops only over water.

(e) A Rescue Strop should be sufficiently long to fit around the chest of a survivor carrying full aircrew clothing and accoutrements (additional equipment) after immersion in water.

(f) The option of an emergency quick release device fitted between the harness and hoist hook should be considered as part of a safety argument that supports the determination that associated risks have been eliminated or otherwise minimised SFARP. If a quick release is to be used the ATSO-C1003 paragraph 3(7) requirements are considered essential design requirements.

(g) The strop or harness should be adequately comfortable and suitable for the wearer as to not injure the wearer during a lift.

(h) The weight of a rescue strop should be selected to limit flail of an empty strop when attached to a hoist hook and hoisted in the aircraft's rotor wash and this should be assessed by flight test. The weight will need to be balanced with buoyancy of the strop to ensure it floats on the water for ease of use during a water hoisting operation. Alternatively the use of a separate weight attached to the hoist hook to weight the cable and limit movement of an empty strop in the rotor wash could be considered.

(i) Where a Harness is to also be used for restraint whilst out of seat within an aircraft the requirements prescribed for Out of Seat Restraint Systems will also need to be considered and applied to the design.

(j) To prevent a rescue device from spinning, the use of an integrated tagline or litter drag chute should be used to assist in stabilising the equipment and patients during the hoist.

(k) Selection of hoisting equipment should be considered in the context of an SFARP solution for the application, configuration, role and environment.

Out of Seat Restraint Systems

2.142. A fall restraint system consist of an anchor point, connectors, full body harness and may include a lanyard, lifeline, or suitable combinations of these. The entire system must be capable of withstanding the impact forces involved in stopping or arresting a fall. When operating out of seat a restraint strap does not provide crashworthy restraint and personnel will be subject to flailing within the extent of the restraint length. When not operationally required to be out of a seat personnel should return to a seat restraint as required by DASR ORO.70(b).

Superseded

2.143. Restraint systems shall primarily be designed to keep personnel within the designated safe bounds of the aircraft at all times. There may be particular cases however where personnel need a length of restraint to achieve a required positioning where the restraint length could place the personnel at a fall risk position. (For example a helicopter Aircrewman conducting clearances by lying on their stomach to look out the door and underneath an aircraft. In this example when moving from lying to standing position the restraint length could allow the standing Aircrewman to exit the door).

2.144. **Design Requirement (Essential).** *Out of Seat Restraint systems must meet the requirements of the following standards:*

(a) *ATSO-C1001, Dispatcher's Restraint Strap. With the following tailoring:*

1. *Para 3(1) should read: Subject to subclauses (2) to (6), the dispatchers restraint strap must meet the requirements mentioned in AS/NZS 1891.1:2007 relating to lanyards*
2. *Para 3(2) should refer to clause 2.2.1 of AS/NZS 1891.1:2007 instead of 3.2.4 of AS/NZS 1891.1:1995. It is noted that designs incorporating a three ring disconnect include a small eyelet in the load bearing webbing, this may be accepted so long as strength and wear requirements are met*
3. *Para 3(2)b shall refer to the requirements 4.4.1 of AS/NZS 1891.1:2007, tested in accordance with Appendix G of AS/NZS 1891.1:2007*
4. *Para 3(3) should refer to clause 2.3 of AS/NZS 1891.1:2007*
5. *Para 3(6) should refer to the test at Appendix G of AS/NZS 1891.1:2007 instead of Appendix D of AS/NZS 1891.1:1995*
6. *Para 6 should refer to AS/NZS 1891.1:2007 instead of AS/NZS 1891.1:1995*
7. *The ATSO required quick release strap may be optionally omitted for platforms which would not gain significant advantage from the implementation of a quick release device. This is to be determined by the MAO, it is anticipated that all rotorcraft will incorporate a quick release device, whereas large fixed wing aircraft will likely forgo this requirement.*

(b) *AS/NZS 1891.1:2007 Industrial fall-arrest systems and devices – Harnesses and Ancillary Equipment; (As tailored by ATSO-C1001)*

1. *All requirements relating to the use of personal energy absorbers shall also be removed from AS/NZS 1891.1:2007.*
2. *The requirements relating to the adjustment of a pole strap found at clause 4.3.2 of AS/NZS 1891.1:2007are deemed as essential, and shall be applied to the lanyard assembly used. The lanyard length must be conveniently adjusted with self-locking connectors that do not cause damage to the lanyard. The release of these connecters must require consecutive deliberate actions in accordance with clause 5.2.1 of AS/NZS 1891.1:2007.*

2.145. **Design Requirement (Recommended).** *All parts of the restraint should be flame resistant in accordance with the general requirements for life support equipment section 2.19 of the DASDRM, therefore the out of seat restraint system should be FAA Part 25.853 compliant.*

2.146. **Key Considerations.** The following key considerations should be made when introducing out of seat restraint equipment:

Superseded

(a) Platform specific variation will occur. Consideration of the platform specific environment when applying the working at heights code of practice and related standards should be undertaken in each case.

(b) Where working at height standards are used they must be appropriately tailored to an aviation context as aircraft are dynamic platforms and falls can occur in multiple directions and in succession.

(c) A crew member should be able to easily move about the cabin and access all required equipment for their duties, but movement should be restricted beyond the required range of motion to avoid injury under extreme flight conditions or in a crash/hard landing.

(d) Cargo, role equipment and personnel should be appropriately spaced to minimise the likelihood and severity of potential impact should adverse flight conditions be encountered while a user is reliant on out of seat restraints. Consideration should also take place to ensure that adverse reactions such as rubbing and snagging on obstacles so as to avoid minor injuries to personnel or damage to the restraint system. Additionally users operating out of seat should be aware of their surroundings and should have the ability to secure themselves by using hand holds or other means in the event of unexpected turbulence being encountered.

(e) Crew should be able to adjust their lanyards quickly and efficiently, this will assure that they will adjust their lanyards constantly and keep them correctly set as they move about the airframe and conduct varying roles. These mechanisms should not be prone to inadvertent length adjustment. The restraint system should be designed in such a way that it prevents a user from gaining excessive momentum in the event the aircraft accelerates rapidly. This must be balanced with the need to move about the cabin.

(f) As recommended by CASA Airworthiness bulletin 25-007, Restraint straps and harnesses should remain connected to an approved hard point at all times during flight. The use of hard points that are located at height either on a wall or overhead is preferred over the use of a floor based point.

(g) As recommended by the Canada National Defence Airworthiness Design Standards Manual more stringent civilian type “full body’ harnesses incorporating leg and shoulder straps should be used wherever operationally possible as opposed to belt or lower body harnesses.

Ballistic Protection

2.147. Aircrew ballistic protection includes protection of crewmembers from weapons such as firearm projectiles, fragmentation, shotgun pellets and sharp edges such as knives and spears. This protection is provided through ballistic armour worn by the crewmember. While the Soldier Modernisation SPO (SMSPO) provides guidance on ballistic protection standards, ALSLMU provides guidance specifically relating to the integration of ballistic protection ALSE within Defence aircraft.

2.148. **Design Requirement (Essential).** *If the ballistic protection ALSE design relies upon rapid removal to assist emergency egress, mitigate negative buoyancy in water, or for Helicopter Under Water Escape (HUET), the rapid removal mechanism must be capable of being activated with one hand.*

2.149. **Design Requirement (Essential).** *The material used for the outer layer of a ballistic protection ALSE garment must comply with the ‘Material requirements’ portion of BS EN 1149-5:2008 - Protective clothing - Electrostatic properties Part 5: Material performance and design requirements. Pre-test conditioning of the test specimen must be conducted by cleaning the specimen five times in accordance with the manufacturer’s cleaning instructions.*

Superseded

(a) **Tailoring Advice.** The purpose of this design requirement is to ensure that ballistic protection ALSE does not pose a hazard in an aviation environment due to electrical arcing caused by static electricity. An alternate standard may be used if it can be shown to prevent the ballistic protection ALSE from posing a hazard due to static electricity build up or discharge. ALSLMU advice must be sought prior to use of an alternate standard.

2.150. **Key Considerations.** The following key considerations apply when introducing ballistic protection ALSE:

(a) Ballistic protection ALSE tends to be heavy, affect the posture of the wearer and restrict the mobility of the wearer. It should therefore be considered to be a hazard to the wearer and only be used for the purpose of mitigating hazards which are more severe than the hazard it poses.

(b) Requirements for the level and type of protection of ballistic protection ALSE should be based upon assessment of an identified threat such as a defined set of weapon systems and engagement ranges. Such a threat assessment should also consider any protection offered by an aircraft's structure. Land Division of the Defence Science and Technology Group can be engaged to assist in the conduct of such threat assessments.

(c) Soldier Modernisation Systems Program Office (SMSPO) should be consulted regarding the effectiveness of any proposed ballistic protection ALSE system.

POST EVACUATION SURVIVAL DOMAINS

Survival Aids

2.151. Survival aids are required to support the four priorities of survival; Protection (from environment, enemy, propagation of injuries etc.), Location (signalling equipment, locator beacons, radios etc.), Water and Food. Survival aids can be carried in aircrew or passenger ALSE ensembles, within life rafts or specific survival aid packs carried separately on an aircraft. The type and quantity of survival aids required will depend on the CRE for a particular aircraft and may vary from operation to operation depending upon the potential survival environment and expected recovery times.

2.152. Five survival environments, identified as Sea, Coastal, Arid, Jungle and Extreme Cold, are taught by Combat Survival Training School and addressed in the Professional ADF Aviators Reference Manual (PAARM) Volume 08 Combat Survival. Where necessary, the survival aid requirements are tailored to each of these environments.

2.153. **Limitations.** The following limitations apply to this Survival Aids section:

(a) The requirements of this section may not need to be applied to ADF transport aircraft that operate similarly to an equivalent civil aircraft type. In such cases DASR AMC ORO.70.A 'Compliance Examples' allow the quantity and type of available survival equipment to meet an acceptable civil standard consistent with a similar aircraft type. When not operated similarly to an equivalent civil aircraft type these requirements will need to be applied to ensure survival equipment appropriate to the task or mission is carried.

(b) Life Raft specific equipment such as pumps to inflate rafts, repair kits, patches, bailing buckets, oars/paddles are not considered within this Domain as it is expected that these will be a defined requirement in the design of a life raft and therefore covered in the Life Raft domain.

Superseded

(c) First Aid is only considered within scope of this Domain where it is provided within an ALSE ensemble or Survival Kit for the purposes of use following an aircraft emergency landing, ditching or crash. First Aid kits supplied in an aircraft for use in a medical emergency during flight are considered out of scope.

2.154. National Aviation Authorities prescribe operational requirements for operators to have a means for determining suitable survival aids are selected for their particular operations and related environments. As such an exact and standard set of Survival Aids is not be prescribed here. Instead the types of survival aids that are considered essential and recommended for various environments are identified to allow systems project/program offices to work with operators to determine a tailored solution for a particular platform CRE.

2.155. This may be achieved with a standard survival aid suite that is applicable to all aspects of the CRE with supplemental survival aid configurations identified for particular environments/operations that are added or removed as required.

2.156. The selection and quantity of survival aids should be appropriate for the period of time anticipated between an emergency landing or ditching and the location and provision of support or rescue of survivors.

2.157. Tailoring of the survival aid solution to particular environments/operations and expected rescue time may assist in minimising the size and weight of survival aids.

2.158. The use of multi-functioning equipment may assist with the minimisation of size and weight of survival aids.

2.159. **Design Requirement.** *For each of the five key survival environments the following table identifies the minimum Essential (E) and Recommended (R) survival aids to be available in some capacity on the platform. Items that must be carried on the person (aircrew) are identified with an asterisk (*) others may only need to be in a survival kit or life raft. This table does not identify the exact type or quantity of the survival aid that is required, this must be determined on a case by case basis for a particular platform and the intended type of operation and environment and be suitably justified as part of a safety argument that supports a determination that associated risks have been eliminated or otherwise minimised SFARP. There may be a need for multiple configurations for various operational circumstances.*

Table 2-1: Required Survival Aids

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Protection					
First Aid					
Wound Dressings (e.g. bandage, gauze, padding, adhesive tape)	E	E	E	E	E
Tourniquet, Non-pneumatic	E*	E*	E*	E*	E*

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Gloves, Examination	E	E	E	E	E
Bandage, Gauze, Impregnated (QuikClot)	R	R	R	R	R
Adhesive Bandages	R	R	R	R	R
Alcohol Swabs	R	R	R	R	R
Antiseptic Cream / Betadine	R	R	E	R	R
Sunscreen	E	E	E	E	E
Lip Balm	R	R	R	E	E
Insect Repellent	E	E	E	E	E
Motion Sickness Tablets	E	E			
Anti-Diarrhoea Tablets	R	R	R	R	R
Pain Relief Tablets	R	R	R	R	R
Clothing					
Sun Hat	R	R	R	R	
Beanie					R
Gloves (cold weather)					R
Mosquito Net	R	R	E	R	
Socks			R		R
Face and neck protection (Scarf)				R	R
Sleeping Bag				R	E

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Space Blanket	E	E	E	E	E
Needle and Thread	E	E	E	E	E
Sunglasses	E	R		E	E
Shelter					
Tent / Shelter					R
Fire					
Matchless Fire Set (flint, striker, hexamine & tinder)	E	E	E	E	E
Waterproof Safety Matches	E	E	E	E	E
Tinder (e.g. Cotton Wool)	R	R	R	R	R
High Quality Candle	R	R	R	R	R
Stove and Fuel					E
Location					
406MHz Distress Beacon (COSPAS-SARSAT) / CSAR Beacon [(a)]	E	E	E	E	E
PSAR Radio / CSAR Radio [(a)]	E*	E*	E*	E*	E*
Light Marker Distress (Strobe light)	E*	E*	E*	E*	E*
Signal Kit, Personnel Distress (Pen Flares)	E*	E*	E*	E*	E*
Signal Distress, Day/Night (Smoke and Flares)	E	E	E	E	E

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Whistle (pea-less)	E*	E*	E*	E*	E*
Mirror, Signalling (Heliograph)	E*	E*	E*	E*	E*
Compass Magnetic (suitable to the Hemisphere of operation)	E*	E*	E*	E*	E*
Sea Marker Dye	E*	E*			E*
Torch / Pen Light with batteries	E	E	E	E	E
IR Glint patch	E*(b)	E*(b)	E*(b)	E*(b)	E*(b)
Air Ground Codes	R	E	E	E	E
Water					
Water Purification Tablets (c)	E	E	E	E	E
Plastic Water Bottle / Container	R	R	R	R	R
Water Supply (bagged water)	E	E	E	E	E
Desalting / Distilling means (Reverse Osmosis Pump)	E	E			
Food					
Emergency Flying Rations	E	E	R	R	E
Fishing Kit	R	R	R		R
General Items					
Pocket knife and pliers / Multi-tool	E*	E*	E*	E*	E*
Survival Knife	E	E	E	E	E

Superseded

Survival Aid	Sea	Coastal	Jungle	Arid	Extreme Cold
Sharpening Stone	R	R	R	R	R
Survival Shovel				R	
Snow Shovel and Ice Saw					E
Survival Manual (applicable to environment)	E	E	E	E	E
Safety Pins	R	R	R	R	R
Clear Plastic Bags (Transpiration Bags)	R	R	R	R	R
Cord	R	R	R	R	R

Notes:

(a) Dependent on threat environment distress beacons and radios may be either unclassified (for Peace-time Search and Rescue (PSAR)) or encrypted (for Combat Search and Rescue CSAR). Note the current operational solution (PRC-112G) contains both radio and beacon capability along with GPS capability.

(b) IR Glint patch for CSAR applications only

(c) Alternative portable water purification devices may be used however these need to be verified to provide a suitable quality of water.

2.160. **Survival Aid General Requirements and Considerations:** The following General requirements and considerations apply to survival aids.

(a) **Design Requirement (Essential).** *Survival Aids that are prone to damage or degradation by water must be contained in waterproof packaging.*

(b) **Design Requirement (Essential).** *Survival Aids with sharp edges must be packaged to prevent injury to personnel or damage to inflatable ALSE which it is packaged with.*

(c) **Design Requirement (Essential).** *Survival Aids must have a means of preventing loss such as a lanyard connecting them to an ALSE Ensemble, life raft or survival kit as applicable.*

(d) **Design Requirement (Essential).** *Where it is not immediately obvious survival aids must be marked for identification and method of operation.*

(e) **Design Requirement (Essential).** *Survival Aid packaging must be able to be opened with chilled and/or gloved hands. This must be demonstrated by the Chilled Hands and Gloved Hands tests of SAE Aerospace Recommended Practice ARP1282 Rev B Survival Kit, Life Rafts and Slide Rafts.*

Superseded

(f) **Design Requirement (Recommended).** *Metallic survival aid components should be resistant to salt-water corrosion.*

(g) **Key Consideration.** The packaging for Survival Aids needs to be suitably designed to cater for the demands of storage, delivery method and intended use.

(h) **Key Consideration.** Survival Aid documentation should include instructions on the safe use, maintenance and storage of the survival aids. This is particularly important for pyrotechnic devices and bright strobe lights.

(i) **Key Consideration.** When new survival aids are introduced into service, aircrew should be appropriately trained for familiarisation with the equipment and instruction on its' safe use. This is particularly important for pyrotechnic devices, bright strobe lights and the Tourniquet and QuikClot bandage first aid items.

(j) **Guidance Maerial.**

1. Australian Army Land Warfare Procedures – General LWP-G-7-7-6 Environmental Survival identifies general considerations for the development of a survival kit at Chapter 2 paragraphs 2.24 for characteristics of a good survival kit and 2.25 for considerations for optimising the limited space and weight available for survival equipment.

2. In an operational environment it may be necessary to ensure that survival aids are easily concealable.

3. CSTS COMSURV Training identifies the need for carriage of a personal survival kit. ALSE will provide a basic kit. Selection of personal survival kit contents should not duplicate what is provided as ALSE but may supplement it to provide some of the recommended items if they are not able to be accommodated within the ALSE.

2.161. **Integration Requirements and Considerations.** The following Integration requirements and considerations apply.

(a) Survival aids will generally be either carried on the person (aircrew ALSE Ensemble), carried within a life raft or separate survival kit. Some items are critical to the highest priorities of survival and are important to be readily available on the person, the method of carriage will be dependent on the aircraft type, its CRE and the type of operations conducted, and may also be limited by the available space on the platform.

(b) **Design Requirement (Essential).** *Where survival aids are integrated into an ALSE Ensemble, the size and weight of the survival aids must be suitable for accommodation by the ensemble.*

(c) Where survival aids are integrated into an ALSE Ensemble:

1. **Guidance Material.** Tailoring of the survival aid solution to particular environments/ operations and expected rescue time may assist in minimising the size and weight of survival aids.

2. **Guidance Material.** Refer to Carriers and Ensemble Integration domain for further requirements and key considerations related to integration with seat and restraint harness systems, the impact on flight controls movement and compatibility with other aspects of the aircraft cockpit and/or cabin.

Superseded

(d) **Guidance Material.** Where survival aids are integrated into a Survival Kit refer to the Survival Kit and Rescue Pack Domain for further requirements related to the integration into the Survival Kit and to the aircraft.

(e) **Guidance Material.** Where survival aids are stowed in a Survival Kit or life raft, items with limited life or inspection/servicing requirements should be packaged so they are easily accessible for replacement or inspection/servicing.

(f) **Guidance Material.** To limit weight and bulk of survival equipment, duplication across survival aid sources (i.e. carried, survival kit, ditching kit life raft) should be minimised unless deemed necessary for expected survival scenarios.

2.162. **Item Specific Requirements and Considerations.** For a number survival aid types there are some key standards or requirements that must be applied. Where applicable these are prescribed below:

(a) **First Aid**

1. **Guidance Material.** First Aid items should be selected with consideration for injuries that may be sustained from an aviation emergency ditching, landing or crash and the expected survival environment. This should include some combination of bandages, dressings, padding and adhesive tapes. Advice should be sought from Joint Health Command to guide the selection of suitable first aid for a particular application.

(b) **Pyrotechnic Signalling Devices**

1. **Design Requirement (Essential).** *Laser flares must not be used as a substitute for conventional pyrotechnic flares.*

2. **Guidance Material.** Laser flares cannot be considered equivalent to conventional orange smoke flares which provide omnidirectional signalling of location during day conditions. They can be considered as supplemental to pyrotechnic flares only.

3. **Guidance Material.** ALSLMU are not the SME for pyrotechnic signalling devices. For advice contact the Explosive Materiel Branch via casglsdembcoordination@dpe.protected.mil.au group inbox. For safety requirements applicable to pyrotechnic signalling devices refer to the eDEOP101 – Department of Defence Explosives Regulations.

(c) **Light Marker Distress (Strobe Light)**

1. **Design Requirement (Essential).** *Where a light marker distress (Strobe Light) is to be integrated with an ALSE Ensemble its intended position during operation must not be in close proximity to the survivor's eye to ensure the bright light does not impact their vision.*

(d) **Distress Beacons**

1. When interpreting Distress Beacon standards and technology, different terminology can be used to describe the type of distress beacon required. A Personal Locator Beacon (PLB) is generally a small, non-buoyant beacon that is easily carried on the person. An Emergency Position Indicating Radio Beacon (EPIRB) is a buoyant beacon generally used on boats and life rafts and designed to float in the water. Distress beacons are sometimes referred to as Electronic Location Transmitters (ELT), this is generally associated with those fitted to an aircraft however it is also sometimes used

Superseded

to include all types. Care should be taken in the selection of each device as the terminology and intended use can often vary from country to country.

2. **Design Requirement (Essential).** *All beacons used by Defence must be 406.025 MHz COSPAS–SARSAT capable unless approved by HQJOC AOC.*

3. **Design Requirement (Essential).** *Distress Beacons for PSAR applications must comply with the Australian Communications and Media Authority (ACMA) Radio communications (406 MHz Satellite Distress Beacons) Standard 2014 and the referenced requirements of AS/NZS 4280.1: 2017 (for EPIRBs) or AS/NZS 4280.2:2017 (For PLBs).*

4. **Design Requirement (Recommended).** *Distress Beacons for PSAR applications should comply with the remaining aspects of either AS/NZS 4280.1: 2017 (for EPIRBs) or AS/NZS 4280.2:2017 (For PLBs).*

5. **Guidance Material.** FAA TSO-C126a or TSO-C126b approved distress beacons are common. These comply with requirements from RTCA DO-204A or RTCA DO-204B respectively. These standards have not yet been assessed for equivalency with the ACMA standard or AS/NZS standards. As such if a TSO approved beacon is proposed to be used it should be assessed against the essential ACMA standard.

6. **Guidance Material.** TSO-C126 refers to distress beacons as Emergency Locator Transmitters of various types. The applicable types are Survival Class A (Buoyant) which is equivalent to an EPIRB and Survival Class B (Non-Buoyant) which is equivalent to a PLB. Other types relate to those ELTs that are installed to the aircraft itself.

7. **Guidance Material.** Distress Beacons must be registered through Headquarters Joint Operations Command (HQJOC) Air and Space Operations Centre (AOC) on the ADF Search and Rescue Beacon Database.

(e) **Compass**

1. Most compasses are designed to operate in either the Southern or Northern Hemisphere. They do not function correctly in the opposite hemisphere due to an imbalance in the needle from alignment of the earth's magnetic field. As such it is important that a compass is selected suitable for the hemisphere of operation.

2. **Design Requirement (Recommended).** *Where operations span both hemispheres, or aircraft are routinely expected to operate in either hemisphere, a Dual hemisphere compass should be used.*

(f) **Sunscreen**

1. **Design Requirement (Essential).** *Sunscreen provided as a survival aid must be at least SPF 45+ in accordance with AS/NZS 2604:2012 Sunscreen products – Evaluation and Classification.*

(g) **Water**

1. **Design Requirement (Essential).** *Water used in packaged water must meet the requirements of the FSANZ standard 2.6.2 – Non-Alcoholic Beverages and Brewed Soft Drinks.*

Superseded

2. **Design Requirement (Essential).** *Packaged water must meet the requirements FSANZ standard 1.6.1 (Microbiological Requirements for Food). Testing for E.coli should be conducted following the procedure listed in AS/NZS 4276.22.*

3. **Design Requirement (Recommended).** *Once filled, the air above the water level in packaged water should be totally displaced.*

4. **Design Requirement (Recommended).** *Packaged water should have the date of filling stamped after the words Date Filled.*

5. **Design Requirement (Recommended).** *Packaged water should have the batch numbers stamped after the words Bag Batch No.*

6. **Key Consideration.** The packaging for water needs to be suitably designed to cater for the demands of storage, delivery method and intended use for the water. For example water carried in a deployable rescue pack may be carried external to the aircraft cabin and be subject to altitude pressure variations, freezing at low temperatures (noting expansion of water on freezing) and being dropped from altitude.

(h) **Food**

1. **Design Requirement (Essential).** *Food sources provided as survival aids must meet the minimum ADF standard for Combat Rations which is prescribed in DEF(AUST) 10374 Food Safety Standard for Manufacturers and Suppliers of Combat Rations and their Components Standard, Issue 1.*

2. **Guidance Material.** One example of suitable food provisions is the Emergency Flying Ration which is a standardised ration in accordance with DEF(AUST) 10655 that can be included in survival kits or life rafts.

(i) **Knives**

1. **Design Requirement (Recommended).** *The considerations of Australian Army Land Warfare Procedures – General LWP-G-7-7-6 Environmental Survival Chapter 2 Section 2-1 should be applied to the selection of pocket and survival knives as applicable.*

(j) **Electronic equipment**

1. **Design Requirement (Essential).** *Any electronic survival aids must be evaluated for safe carriage and use in accordance with the requirements for portable electronic devices in DASDRM Section 5 Chapter 6 Role Equipment and Portable Electronic Devices (including Annex A). This will ensure safety of the electrical design in an aviation environment (including batteries) as well as for Electromagnetic Interference and Compatibility (EMI/C).*

2. **Key Consideration.** For battery powered devices where spare batteries are provided they should be compatible with the OEM recommended battery type to ensure performance.

(k) **Other.** Requirements for some survival aid items have not yet been developed. Contact ALSLMU for further information and advice on requirements for other items.

Thermal / Immersion Protection

2.163. The main objective of immersion protective clothing is to limit the rate of heat loss of a survivor in water to avoid death from hypothermia before rescue. This objective is achieved by the

Superseded

provision of thermal insulation, generally provided through insulated undergarments, and outer water resistant layers to ensure the insulation continues to perform satisfactorily post submersion in cold water.

2.164. Two major types of immersion suit exist, quick don and constant wear. Both are used in the ADF in order to ensure that all use cases are catered for. Generally, constant wear suits are used in circumstances where there is inadequate space or time to react in an emergency, while quick don suits may be used on larger aircraft where there may be adequate warning prior to a ditching event.

2.165. **Design Requirement (Essential).** *Constant wear immersion suits must comply with ISO 15027-1:2012.*

(a) *Tailoring. The requirements listed at 4.5 relating to conspicuity are deemed non-essential as a less conspicuous suit may be required for operational reasons or to minimise distracting reflections within the flight deck.*

2.166. **Design Requirement (Essential).** *Quick don immersion suits must comply with ISO 15027-2:2012.*

(a) **Tailoring.** The requirements listed at 4.5 relating to conspicuity are deemed non-essential as a less conspicuous suit may be required for operational reasons or to minimise distracting reflections within the flight deck

2.167. Design Requirement (Essential). All immersion suits must be tested to ISO 15027-3:2012.

(b) **Guidance Material.** The standard gender breakdown for testing assumes 6 personnel of which at least one but no more than three are female. It is recommended that testing be conducted with an equal gender balance where possible.

2.168. **Design Requirement (Recommended).** *Quick don immersion suits should also comply with the illumination resistance requirements outlined at 4.12.2 of ISO 15027-1:2012.*

(a) **Guidance Material.** Properly stored quick don immersion suits are not expected to be significantly exposed to light, but it is possible that some may become exposed therefore some resistance to degradation is desired.

2.169. **Design Requirement (Recommended).** *Immersion suits should have an attached sprayhood as per ETSO-2C502 requirement 10 – breathing protection.*

(a) **Guidance Material.** A spray hood can minimise the risk of secondary drowning in rough water. Should a spray hood be impractical other means of limiting secondary drowning should be implemented.

2.170. **Key Considerations.** The following key considerations should be taken into account when introducing immersion suits to service.

(a) There exists several classes of immersion suit, each rated for varied temperatures and durations of immersion. It is important the appropriate class of immersion suit is selected based in the water temperature, likely response time in an emergency and the ambient air temperature. A solution with excessive insulation may lead to heat related injury, insufficient insulation may lead to hypothermia.

(b) Integration of Immersion suits with other ALSE and confined cockpits must be completed to ensure that the immersion suit does not significantly impede the wearer or their equipment

Superseded

2.171. Survival Kits and Rescue Packs provide a means of holding a range of survival aids for use either following an aircraft emergency or for delivery to survivors as part of a Search and Rescue operation. Guidance relating to the internal contents (life rafts and survival aids) of survival kits and rescue packs can be found separately in the domain in which they belong.

2.172. Survival Kits and Rescue Packs are categorised by the following definitions:

(a) **Survival Kit.** A kit installed or carried on to an aircraft containing survival aids to assist crew and passengers in the event of an emergency landing, ditching or crash.

(b) **Rescue Pack.** An air droppable pack designed to provide assistance to survivors on the land or at sea. This may include survival aids, first aid, medical or other equipment and life rafts as required by the intended application.

2.173. **Design Requirement (Essential).** *When fitted to an aircraft survival kits must be stored in a marked location that is rapidly accessible and does not hinder evacuation.*

2.174. **Design Requirement (Essential).** *Survival kits must meet the fire resistance requirements of Part I of Appendix F to FAR 25 as applicable.*

2.175. **Design Requirement (Essential).** *Battery operated equipment must have sufficient battery capacity available to allow for operation throughout the intended survival duration of the survival kit or rescue pack in which the equipment is contained.*

(a) **Key Consideration.** This requirement may be met though a single large capacity battery, multiple interchangeable batteries or a means to reliably recharge the battery in the field.

2.176. **Design Requirement (Recommended).** *The battery charge at which battery operated equipment will cease to function correctly should be established.*

2.177. **Design Requirement (Recommended).** *Rescue Packs should meet the fire resistance requirements of part I of Appendix F to FAR 25 as applicable.*

2.178. **Design Requirement (Recommended).** *Battery expiration dates of included equipment should be marked on the exterior of a survival kit or rescue pack.*

2.179. **Design Requirement (Recommended).** *Survival kits and rescue packs should be designed in a manner such that the probability of any error in configuration of its contents is limited.*

2.180. **Design Requirement (Recommended).** *Survival Kits and Rescue packs should not become damaged in a manner that reduces its function by temperature cycles, pressure cycles, forces or exposure to other environmental conditions placed upon it both during flight and when not in use but fitted to the aircraft on the ground.*

2.181. **Key Considerations.** In addition to the standards and requirements identified the following key considerations should be taken into account in the design of Survival Kits and Rescue Packs.

(a) Components of Survival Kits and Rescue Packs should be generally resistant to wear and tear.

(b) Weight and balance of the rescue pack should be understood and suitably communicated to operators.

(c) Survival Kits and Rescue Packs should be packed in such a manner to minimise the likelihood of damaging survival aids.

Superseded

(d) Further guidance and test methods are contained in MIL-HDBK-1763 Aircraft Stores Compatibility.

(e) AMTDU's Aerial Delivery Development personnel are the SME's and certifier for load clearance and should be contacted for advice on how to attain and maintain load clearances.

Continuing Airworthiness Requirements

2.182. To ensure that Survival Kit and Rescue Pack functions are not compromised through inadequate continuing airworthiness management systems, the following continuing airworthiness requirements and key considerations apply.

2.183. **Continuing Airworthiness Requirement (Essential).** *All components of Survival Kits and Rescue Packs must be regularly inspected and maintained in accordance with approved Instructions for Continuing Airworthiness. This includes ensuring that batteries are inspected, charged and replaced as required.*

2.184. **Continuing Airworthiness Requirement (Essential).** *Life Support equipment must be inspected, repaired and packed in an approved maintenance facility IAW AAP 7220.001-99 Aeronautical Life Support Instructions.*

2.185. **Continuing Airworthiness Requirement (Essential).** *Crew and maintainers must be trained in the correct procedures for manual handling for the purposes of loading and deploying Survival Kits and Rescue Packs.*

2.186. **Continuing Airworthiness Requirement (Recommended).** *Battery operated equipment should have batteries replaced or recharged once the charge drops below the minimum required for correct functioning.*

RESPIRATION DOMAINS

Oxygen / Smoke and Fumes Masks

2.187. DASDRM Section 3 Chapter 6 includes requirements for Aircraft Oxygen Systems. Some of the requirements of that chapter may be considered applicable to oxygen masks as a subset of the oxygen system and should therefore also be considered in addition to the requirements of this section.

2.188. **Design Requirement (Essential).** *Materials used in oxygen / smoke and fumes masks must be assessed as suitably fire resistant, at the intended temperature ranges, and oxygen concentration levels to which the mask will be exposed by applying relevant materials standards and requirements prescribed within S3C6.*

2.189. **Ejection Seat Aircraft.** For ejection seat aircraft the following requirements must be applied for oxygen / smoke and fumes masks.

(a) **Design Requirement (Essential).** *The requirements of Air Force Interoperability Council Air Standard ASM 4068 – Physiological Requirements for Aircrew Oxygen Masks for Use at High Breathing Pressures Ed2 v2.*

(b) **Design Requirement (Essential).** *The mask related requirements in Air Force Space Interoperability Council Air Standard ASMG 4039 – Minimum Physiological Requirements for Aircrew Demand Breathing Systems Ed1 v2.*

Superseded

(c) **Design Requirement (Essential).** *Inwards relief features, such as an anti-suffocation valve, must be incorporated into oxygen / smoke and fumes masks unless it can be demonstrated that a failure of the breathing air system, that induces suffocation, meets the associated failure probability objective for a catastrophic failure condition. Analysis is one way of demonstrating this compliance.*

2.190. **Non-Ejection Aircraft.** For Non-Ejection aircraft the following requirements apply:

(a) **Design Requirement (Essential).** *For aircraft with type certification based on civilian airworthiness codes the following civilian based requirements of oxygen and smoke and fumes masks must be applied:*

1. *Pilot/Co-Pilot/Other Sedentary Aircrew masks must be of the Quick-Don type and meet the requirements of:*

   i. *TSO-C99a Flight Deck (Sedentary) Crewmember Protective Breathing Equipment, of 05 Jun 08, or*

   ii. *ETSO-C99a Flight Deck (Sedentary) Crewmember Protective Breathing Equipment, of 05 Aug 16.*

2. *Mobile Aircrew masks must meet the requirements of:*

   i. *TSO-C116a Crewmember Portable Protective Breathing Equipment, of 30 Jul 09,or*

   ii. *ETSO-C116a Crewmember Portable Protective Breathing Equipment, of 05 Aug 16.*

3. *Passengers masks must meet the requirements of:*

   i. *TSO-C64b Federal Aviation Administration Technical Standard Order: Passenger Oxygen Mask Assembly, Continuous Flow, of 21 May 08, or*

   ii. *ETSO-C64b European Technical Standard Order: Oxygen Mask Assembly, Continuous Flow, Passenger, of 19 Dec 16.*

4. *Demand Oxygen Masks must meet the requirements of:*

   i. *TSO-C78a Crewmember Demand Oxygen Masks, of 27 May 08, or*

   ii. *ETSO-C78a Crewmember Demand Oxygen Masks, of 21 Feb 18.*

5. **Tailoring Advice.** The standards referenced by the TSO documents prescribe particular microphone standards. In the event that the microphone standards are not suitable for integration with the aircraft then alternative microphones may be permitted. In such cases it must be shown that the microphones are safe to operate in the oxygen rich environment with an equivalent level of safety.

6. **Key Consideration.** Oxygen Masks designed under the prescribed Ejection Seat Aircraft requirements can be utilized in Non-Ejection aircraft if the design is deemed suitable to the CRE.

(b) **Design Requirement (Essential).** *For other ADF aircraft the requirements identified above for civil based aircraft at sub-para a must be applied with the following additional considerations:*

Superseded

1. *Use during periods of intended cabin depressurisation, not just for emergency, must be accounted for. This includes the need to allow the wearer to occlude their nostrils in order to perform the Frenzel and/or Valsalva manoeuvre whilst wearing the mask.*

2. *Operating altitude / cabin altitude requirements for defence aircraft may exceed the requirements of the prescribed standards. In such cases the relevant standard must be tailored to cater for the higher altitudes of a specific aircraft's CRE.*

3. *In some aircraft CRE, passengers may require additional smoke and fumes protection of the eyes. In these cases TSO-C64b / ETSO-C64b will not be suitable. SAE AS8048 Performance Standard for Passenger Smoke and Toxic Fumes Respiratory Protective Equipment or standards for aircrew protective breathing equipment must be applied for passenger applications where protection of the eyes from smoke and fumes is required.*

(c) Where only smoke and fumes protection is required (for example on aircraft operating below the altitudes at which supplementary oxygen is required such as rotary wing aircraft) the following standard may be applied:

1. **Design Requirement (Recommended).** Air Force Interoperability Council Air Standard ASM 4066 Ed 1v4 Smoke Protection Breathing Equipment Used by Mobile Aircrew in Non-Ejection Seat Aircraft at Pressure Altitudes up to 10,000ft.

2. **Design Requirement (Recommended).** In addition to ASM 4066 Ed 1v4 requirements the mask should allow the wearer to occlude their nostrils in order to perform the Frenzel and/or Valsalva manoeuvre whilst wearing the mask.

(d) **Design Requirement (Recommended)** Inwards relief features, such as an anti-suffocation valve, should be incorporated into oxygen / smoke and fumes masks unless analysis demonstrates that a failure of the breathing air system, that induces suffocation, meets the associated failure probability objective for a catastrophic failure condition.

2.191. **Key Considerations**. In addition to the standards and requirements identified the following key considerations should be taken into account in the design of an Oxygen / Smoke and Fumes mask:

(a) Materials should not contaminate breathing gases so as not to irritate the respiratory system or pose long term safety hazards.

(b) Parts of the mask which come into contact with the skin of the head and neck should be made of soft, pliable materials which are non-irritating, non-allergenic, and non-toxic to wet and dry skin.

(c) Masks should not impart an offensive smell or taste to the wearer.

Underwater Emergency Breathing

2.192. Underwater Emergency Breathing Devices (UEBD) consist of a means of storing pressurised air and a regulated delivery system. UEBD are designed for use in rotary wing aircraft to extend the available escape duration should it be rapidly sinking.

2.193. **Design Requirement (Essential).** *The UEBD must meet all requirements of ACS 4043 of 27 Feb 02.*

Superseded

2.194. **Design Requirement (Essential).** *The UEBD must meet the following requirements from UK CAA draft technical standard CAP 1034 "Development of a Technical Standard for Emergency Breathing Systems" of May 2013.*

(a) *Be simple to deploy and capable of being operated with either hand. The number of deployment actions must be minimised, ideally, with no more than one action being required to activate the system on submersion.*

(b) *Potential snagging hazards must be reduced to a minimum. Any part of the UEBD that might pose a snagging hazard during flight, emergency evacuation, escape or must be suitably covered, protected or restrained.The UEBD design and materials used in its construction must be chosen to have no features which would have a detrimental effect on the performance or operation of other equipment, impair the performance of the seat harness or hinder harness release. UEBD must not impede or prevent escape from a submerged helicopter.*

2.195. **Design Requirement (Essential).** *Requirements 5.7.1 a to f of EN 250:2014 relating to demand regulator performance; work of breathing and respiratory pressure must be met in order to maximise ease of breathing and to minimise the risk of barotrauma.*

2.196. **Design Requirement (Essential).** *Pressure cylinders must meet the requirements of AS 2030.1-2009.*

2.197. **Design Requirement (Recommended).** *The mouthpiece, with the hose and general assembly should withstand a minimum of 1000N as per BS EN 250:2014 requirement 5.8.1 relating to external force on the hose assembly.*

2.198. **Design Requirement (Recommended).** *Head movement should not have any negative effects on the air supply pressure or volume at the mouthpiece.*

2.199. **Key considerations.** The following are key considerations that should be considered when introducing underwater emergency breathing devices.

(a) UEBDs are designed to assist with proven existing egress procedures, they are not the only consideration in helicopter underwater escape.

(b) The intent of a UEBD is not as a SCUBA device, UEBD is intended for escape only, users should not attempt to re-enter the aircraft once they have successfully egressed.

(c) Extensive HUET training is required for all users of UEBD, regular training in proper use of the system is required in order to extract maximum benefit from the system should it be required in an emergency.

(d) Breathing air that meets the minimum standards prescribed at paragraph 4.4.2 of AS/NZS 2299.1:2015 should be used to fill the cylinder.

Table 2-2: Breathing air gas composition per 4.4.2 AS/NZS 2299.1:2015

Component	Concentration at 15°C and 101.3 kPa
Oxygen	(21 ±1)% by volume
Carbon Dioxide	≤600 ppm (≤1500mg/m^3)

Superseded

Carbon Monoxide	≤5 ppm (≤8mg/m^3)
Oil	≤0.5 mg/m^3
Odour	No objectionable odour

(e) The available quantity of breathing air should be maximised while maintaining a form factor with minimal impacts on other ALSE and mobility. For example a 4500psi system is preferred over a comparable 3000psi system.

(f) Integration of UEBDs with clothing should consider the placement of all other equipment. The best overall solution which ensures that the UEBD is readily accessible while providing minimal impact on other equipment should be sought. Placement of the UEBD should also consider the forces of a crash and the potential for injury.

(g) As with any high pressure vessel, dangerous goods considerations are required when transporting UEBDs. This is managed through existing procedures for managing dangerous goods relating to scuba tanks.

(h) Filling procedures should be compliant with AS 2030.5-2009.

(i) Moisture content should be minimised and ideally be less than 100mg/m3 as recommended in AS/NZS 2299.1:2015 paragraph 4.2.4.

SENSORY PROTECTION DOMAINS

Hearing Protection

2.200. Noise is a workplace hazard regulated by the WHS Regulations 2011 at Chapter 4, Part 4.1. Regulations 56, 57, 58 and 59. Importantly Regulation 56 defines the exposure standard for noise.

2.201. ADF policy is presented in SafetyMan Noise Management Procedure 04 – Noise Identification Assessment and Monitoring, which identifies that specialist advice is available to support noise assessments.

2.202. CASsafe Requirements for Managing Regulated Hazards, Regulated Hazard 2 - Noise provides relevant CASG policy and identifies that specialist advice is also available from the CASG directorate of Work Health and Safety.

2.203. Hearing protection includes both passive and Active Noise Reduction (ANR) and in some cases includes helmet design as a major contributing design factor. The aircraft platform cockpit and cabin noise profile is required when determining the type of hearing protection necessary. Different hearing protection configurations may be required for each individual aircraft platform. Alternate configurations may also be required to satisfy comfort requirements of individual aircrew and passengers.

2.204. Aircrew hearing protection generally needs to cater for communications and situational awareness of aircraft noises and warning signals. In many cases, Aircrew hearing protection will need to be integrated with a flight helmet. In some cases, passengers may need similar hearing protection solutions to aircrew, in others general Personal Protective Equipment (PPE) type hearing protection

Superseded

may be suitable. Regardless, the process of assessing noise hazards for passengers requires the same level of rigour as for aircrew to ensure adequate protection is provided.

IMPORTANT NOTE

The focus of this section is the identification of standards and requirements for hearing protection equipment selection. Selection of hearing protection lies within the identification of risk control measures phase of a risk assessment process and is considered PPE, the lowest level of control in the hierarchy of controls. Selection of hearing protection can only occur once the sources of noise are identified, the risks associated with the noise are assessed and understood (i.e. noise levels are measured) and the higher controls of elimination, substitution, engineering and administration have been considered and applied where reasonably practicable.

2.205. **Key Considerations.** for this process are provided along with the prescription of standards and requirements for hearing protection due to the importance of first understanding the noise hazard and managing it with a wider application of the hierarchy of controls.

Understanding Noise Hazards

2.206. **Key Consideration.** The Work Health and Safety (WHS) (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 should be applied to the assessment of aircraft noise hazards. (This is an approved code of practice under section 274 of the WHS A) AS/NZS 1269.0:2005(R2016) Occupational Noise Management - Part 0: Overview and General Requirements also provides guidance on adopting an integrated approach to noise management and outlines how the AS/NZS 1269 series of standards can be applied.

2.207. **Key Consideration.** The first phase of managing noise is identifying the noise hazards and assessing the risk. This can be achieved by conducting noise surveys to measure and understand the noise aircrew and passengers on aircraft are exposed to. This should include consideration of pre and post-flight noise of the airfield that is routinely encountered. AS/NZS 1269.1:2005 (R2016) Occupational Noise Management – Measurement and Assessment of Noise Immission and Exposure provides suitable requirements and guidance on the types of noise assessment that may be required, the general objectives of an assessment and the instrumentation and procedures needed to carry it out. Of particular interest is Section 6.3 identifying noise assessments required for hearing protector programs and Section 8.5 detailing the measurement procedures required for selecting hearing protectors. Within Defence the following support is available:

(a) The Institute of Aviation Medicine (IAM) may be engaged to support the conduct of noise surveys for ADF aircraft.

(b) Environmental Health Officers (ENVHOs) may be engaged to support the conduct of noise assessments.

(c) CASG Directorate of Work Health and Safety may provide Occupational Medicine and Hygiene specialist advice.

2.208. **Key Consideration.** Once the noise risks are understood, WHS Regulations require them to be eliminated or otherwise minimised SFARP using the hierarchy of controls. AS/NZS 1269.2:2005(R2016) – Occupational Noise Management Part 2 Noise Control Management provides requirements and guidance on the management of noise controls and may be a useful reference for the consideration of higher order risk controls before applying hearing protection as PPE.

Superseded

2.209. **Key Consideration.** All considerations of Section 5.6 of the WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 are applicable to the selection of hearing protectors.

Hearing Protector Selection Requirements

2.210. **Design Requirement (Essential).** *Where higher order risk controls cannot reduce noise exposure below the exposure standard (LAeq,8h of 85 dB(A), or LC peak of 140 dB(C), WHS Regulation 56) hearing protection solutions must be selected in accordance with AS/NZS 1269.3:2005 (R2016) Occupational Noise Management – Hearing Protector Program Section 6 and appendices A and B. The following ADF policy in SafetyMan must be applied:*

(a) *Both the Classification Method and then Octave-Band Method must be applied for all Red, Black and Extreme hearing protection zones (i.e. continuous noise levels exceed 100 dB(A)).*

(b) *For Earplugs and Earmuffs worn in combination for use in Black and Extreme hearing protection zones (i.e. continuous noise levels exceeding 115 dB(A)) the combined attenuation is calculated by adding 3 dB to the highest noise reduction level of the two personal hearing protectors. This must be considered as information from the relevant authority for the purposes of AS/NZS 1269.3:2005 (R2016) paragraph 6.2.5. At lower noise levels, manufacturer information on combined attenuation is to be used.*

2.211. **Design Requirement (Recommended).** The exposure standard applied for the selection of hearing protection should be reduced (from the regulated LAeq,8h of 85 dB(A) or LC,peak of 140 dB(C)) to an LAeq,8h of 80 dB(A) or LC,peak of 135dB(C) to account for the potential exposure of aircrew to ototoxic chemicals present in aviation fuel as recommended in the WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04.

2.212. **Design Requirement (Recommended).** *The exposure standard applied for the selection of hearing protection should be reduced (from the regulated LAeq,8h of 85 dB(A) or LC,peak of 140 dB(C)) to an LAeq,8h of 80 dB(A) or LC,peak of 135dB(C) for children. For the purpose of this requirement a 'child' is a person under the age of 17, who is too physically small to be fitted with hearing protection which would otherwise be available for use by adults.*

2.213. **Design Requirement (Recommended).** *Efforts should be made to reduce noise exposure below the exposure standard SFARP, cognisant of the following (where applicable):*

(a) Where routine work that requires speed or attentiveness, or where it is important to carry on conversations, the exposure should be kept to LAeq,8h of 70 dB(A) as identified by the WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015.

(b) Where sortie durations exceed 10 hours, exposure should be adjusted to account for increased risk of hearing loss in accordance with WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04.

(c) Where aircrew fly more than 5 days a week or more than 8 hours per day, exposure standards should be adjusted as described in SafetyMan Noise Management Procedure 04.

Hearing Protector Design and Performance Requirements

2.214. **Design Requirement (Essential).** *Hearing protectors must comply with the requirements of AS/NZS 1270:2002 (R2014) Acoustics - Hearing Protectors, tailored as follows:*

Superseded

(a) *The majority of requirements and testing are designed for conventional hearing protectors such as Ear Muffs and Ear Plugs and may not be directly applicable to hearing protection solutions required for aircrew and passengers (e.g. those integrated with aircrew helmets). The contribution of the helmet to attenuation of sound should be considered as part of the hearing protection solution. Such solutions should be considered 'Other Devices' as identified at Section 5, and the clauses for complying with Section 2 general requirements as far as possible and applying testing of Sections 3 and 4 in a way that meaningful comparisons can be made with more conventional hearing protectors, should be applied as in the following examples:*

1. *The low temperature drop test for helmet-mounted earmuffs should not be applied to aircrew helmets where the hearing protectors are contained within the helmet and are unlikely to be damaged by situations that this test represents.*

2. *Aircrew helmets usually achieve fitment of the hearing protector to the ear by custom fitting of the helmet. As such, headband-flexing test would not be applicable. In such cases, an analytical assessment of the hearing protection elements of the helmet to ensure sufficient retention and sealing around the wearers ear can be achieved by the means of fitting and adjustment provided with the helmet.*

(b) *ANR Hearing Protectors are considered 'Specialist Devices' in accordance with clause 1.4.12 and should be treated in accordance with Section 5. Further consideration of ANR and other applicable requirements is provided in a dedicated section below.*

(c) *Hearing protection solutions may be assessed/tested to international standards. To cater for these solutions this requirement may, where not deemed reasonably practicable to have the solution tested to this AS/NZS 1270:2002(R2014), be met by suitable analysis to determine that the international standard provides an equivalent level of attenuation.*

Active Noise Reduction Requirements

2.215. ANR technology provides improved attenuation at low frequencies (up to 1000 Hz) and negligible attenuation (and in some cases slightly negative attenuation) at higher frequencies (above 1000 Hz). Any selection of ANR will require detailed understanding of the platform noise profile and the specific performance details of the ANR technology being considered to ensure it provides suitable noise attenuation and its effect on intelligibility of communications is understood. When ANR hearing protection is to be used, the following requirements and considerations apply:

(a) **Key Consideration.** ANR hearing protectors are considered 'Specialist Devices' and should be tested as passive devices in accordance with AS/NZS 1270:2002(R2014), as identified above, for the purposes of a baseline comparison to conventional protectors. This will also provide an assessment of the minimum protection afforded in the event of ANR failure.

(b) **Design Requirement (Recommended).** *Active noise reduction systems used in helmets and headsets should be evaluated in accordance with Advisory Publication (ADV PUB) ASMG 4092 Ed 1 (v1, v2 or v3) – The Evaluation of Active Noise Reduction (ANR) in Flight Helmets and Headsets with the following considerations:*

1. *The Measurement of Sound Pressure Levels at the Ear Canal method should be used as the preferred laboratory method noting it is suitable for ear cup type protectors.*

2. *Other laboratory methods presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) for assessing attenuation should be considered for the evaluation of in-ear ANR devices where the measurement by microphone is not possible.*

Superseded

3. *The laboratory method for assessing signal detection presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) should be used.*

4. *The subjective Modified Rhyme Test method presented in ADV PUB ASMG 4092 Ed 1 (v1, v2 or v3) should be used to assess speech intelligibility.*

5. *The field assessment of attenuation inflight by measuring the Ear Canal sound pressures by microphone and comparing with measurements outside of the helmet/ headset should also be used noting this is limited to assessment of ear cup type protectors. Where used in combination with earplugs or for in-ear ANR systems, additional assessment is required. Subjective assessment via questionnaire is also identified and considered suitable to form part of an evaluation of ANR systems.*

6. *The method of field assessment for improvement in signal detection by introducing tones through the ICS during flight/operating profiles and comparing the volume settings required with ANR OFF and ON to provide a measure of improved signal detection should be applied.*

7. *Subjective Field Speech intelligibility assessment methods should be used to evaluate ANR improvements in speech intelligibly.*

(c) Some international standards for Active Noise Reduction have been identified by ALSLMU but are yet to be fully considered. Contact ALSLMU to discuss ANR requirements.

General requirements and considerations for hearing protection solutions

2.216. **Design Requirement (Essential).** *Aircraft warning tones and annunciations must remain audible to aircrew whilst wearing the hearing protection.*

2.217. **Design Requirement (Essential).** *Speech communications over radio and intercommunications systems must remain audible and intelligible to aircrew whilst wearing the hearing protection.*

2.218. **Key Consideration.** The effect of hearing protection on direct voice communications should be evaluated where required. The safety of personnel will need to be prioritised to ensure exposure standards are not exceeded. This may necessitate additional communications equipment where such communication is deemed essential and cannot be achieved directly with necessary hearing protection in place.

2.219. **Design Requirement (Essential).** *Where rapid altitude pressure changes are possible (e.g. fast jet applications) hearing protectors that effectively seal the ear canal must allow for equalisation of pressure across the protector between the inner ear and surrounding environment to prevent ear damage. E.g. when an individually moulded Communication Earplug (CEP) is used a vented CEP transducer is required.*

2.220. **Key Considerations.** Hearing protection to be used with aviation helmets should not adversely impact other requirements of the helmet, particularly the provision of impact, penetration and/or ballistic protection. This is especially important when fitting new hearing protection to an existing helmet, and less so when being considered as an integrated part of the helmet design. The following should be considered as applicable:

(a) When fitting new hearing protection to an existing helmet the impact on the compliance of a helmet to its specification should be assessed.

Superseded

(b) When implementing a new integrated helmet and hearing protection solution the impact of the hearing protection elements on the requirements prescribed for the Helmet Domain in this chapter of the DASDRM should be considered.

2.221. Key Consideration. Where moulded Earplug or CEP are used the application of lubricant can achieve increased attenuation along with improved ease of insertion and comfort. If lubricant is required to achieve improved attenuation, assessment should consider whether the lubricant will persist in the ear for the duration of noise exposure.

2.222. **Key Consideration.** Where hearing protection solutions allow use of ancillary connected devices (such as Bluetooth connected mobile phones and media players) the sound levels of ancillary audio media play back will contribute to the noise exposure and will need to be considered in noise assessments. Guidance on appropriate use of ancillary devices and the contribution to noise levels should be provided in associated Orders, Instructions and Procedures (OIP).

Related considerations

2.223. When introducing hearing protection solutions the following related key considerations apply:

(a) **Key Consideration.** Hearing protectors should be adequately managed and supported by a hearing protector program to ensure their full effectiveness is achieved. AS/NZS 1269.3:2005 (R2016) Occupational Noise Management Part 3 Hearing Protector Program Section 4 identifies necessary Management Responsibilities whilst Sections 7 through 13 provide guidance that will support the development of a robust program that supports issue, fitting, cleaning, maintenance, training and effective use of hearing protectors.

(b) **Key Consideration.** When providing hearing protection solutions the provision of suitable instructions and training in the OEM's recommended use of the protection to users is essential. The level of protection provided can be significantly reduced if not used correctly for the entire duration of noise exposure, leading to hearing loss or tinnitus. This is particularly important for foam earplug type protection which can provide little to none of the intended attenuation if not inserted correctly. SafetyMan Noise Management Procedure 07 Education, Training and Instruction provides ADF policy on Noise training and provision of promulgation of instructions in OIP.

(c) **Key Consideration.** The WHS (Managing Noise and Preventing Hearing Loss at Work) Code of Practice 2015 and SafetyMan Noise Management Procedure 04 provides guidance on the ongoing monitoring of noise hazards and reviewing control.

(d) **Key Consideration.** Whilst the purpose of hearing protection ALSE is to eliminate or reduce the exposure of personnel to aircraft noise, crew being able to hear the operation of aircraft systems contributes to situational awareness. Crew being able to hear the functioning or malfunctioning or aircraft systems at moderate sound levels through hearing protection is considered desirable.

Night Vision Systems

2.224. Aviation Night Vision Imaging Systems (ANVIS) are helmet mounted goggle assemblies that provide aircrew with night vision capabilities to support the conduct of flying operations at night. The goggles come in a binocular configuration and are powered by battery. There are currently two types of ANVIS goggles approved for Defence use: the AN/AVS-6 and AN/AVS-9. Within these types, there are different configurations that relate to the type of objective lens and type of Image Intensifier Tube (IIT). RTCA DO-275 contains the minimum operational performance standards (MOPS) for aviation night vision imaging systems (NVIS).

Superseded

2.225. **Design Requirement (Essential).** *NVG technologies must comply with STANAG-7042 ED.2 Image Intensifying Night Vision Devices for Aircraft.*

2.226. **Key Considerations.** When introducing new NVG technologies or modifying extant configurations the following considerations apply:

(a) Institute of Aviation Medicine (IAM) should be engaged to assess physiological effects of significant changes to NVG technologies, such as change in phosphor colour (white vs green) or large changes in performance levels compared with in service NVGs.

(b) Ground based assessment of NVGs should be made prior to progressing to flight testing. (Defence Science and Technology Group have NVG test facilities available).

(c) NVGs should be assessed for compatibility with Aircraft Lighting (additional information and standards for Aircraft Lighting and Night Vision Imaging Systems can be found in Section 3 Chapter 7).

(d) NVGs should be assessed for compatibility with Aircraft Head Up Display (HUD) systems where applicable.

(e) NVGs should be assessed for compatibility with aerodrome lighting and obstacle lighting, Noting there are known issues with LED based obstacle lighting not being visible through NVGs, the risk associated with any non-compatibility should be identified and eliminated or otherwise minimised SFARP.

CBRN Protection

2.227. CBRN protection ALSE consists of body covering garments, masks, and equipment to supply uncontaminated breathing air. The body covering garments can be worn under, over, or in lieu of other ALSE or flying clothing. Masks can be half face oronasal types, or full face masks which can also be incorporated in a hood.

2.228. **Design Requirement (Essential).** *An assessment of the effectiveness of a CBRN ALSE countermeasure in a CBRN threat environment for which it is intended to be used must be conducted in consultation with applicable subject matter experts.*

(a) **Guidance Material.** Subject matter experts should belong to the Department of Defence, or be otherwise endorsed by applicable agencies in the Department of Defence. As an example the Chemical Biological Defence Branch of the Defence Science and Technology Group would be suitable for consultation regarding chemical or biological threat environments.

2.229. **Design Requirement (Essential).** *Any part of CBRN ALSE which covers the face must facilitate one handed doffing.*

2.230. **Design Requirements (Essential).** *CBRN ALSE must facilitate the wearer drinking without compromising CBRN protection.*

2.231. **Design Requirement (Essential).** *CBRN ALSE must protect the wearer from hypoxia as per paragraph 4c of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.232. **Design Requirement (Essential).** *A CBRN ALSE mask must allow the wearer to eliminate mucus and vomitus from the mask as per paragraph 4i of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

Superseded

2.233. **Design Requirement (Essential).** *CBRN ALSE must facilitate donning and doffing contaminated CRBN ALSE as per paragraph 9 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.234. **Design Requirement (Essential).** *CBRN ALSE which incorporates an oronasal mask must seal per paragraph 12a of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.235. **Design Requirement (Essential).** *A CBRN ALSE mask must facilitate the equalisation of inner ear pressure as per paragraph 13 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.236. **Design Requirement (Essential).** *A CBRN ALSE mask which incorporates optical transparencies must incorporate anti-mist/anti-fogging features as per paragraph 17 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.237. **Design Requirement (Essential).** *If CBRN ALSE displaces eye and face protection ALSE, the CBRN ALSE must be assessed for suitability as eye and face protection as per the eye and face protection domain portion of this chapter.*

2.238. **Design Requirement (Essential).** *The material used for any item of CBRN ALSE which is worn as the outer layer of clothing must comply with the 'Material requirements' portion of BS EN 1149-5:2008 - Protective clothing - Electrostatic properties Part 5: Material performance and design requirements. Pre-test conditioning of the test specimen by laundering is not required.*

(a) **Tailoring Advice.** The purpose of this design requirement it to ensure that CBRN ALSE does not pose a hazard in an aviation environment due to electrical arcing caused by static electricity. An alternate standard may be used if it can be shown to prevent the CBRN ALSE from posing a hazard due to static electricity build up or discharge.

2.239. **Design Requirement (Essential).** *The material making up the outer layer of CBRN ALSE which is worn as the outer layer of clothing must be subject to Test Procedure A – Surface Ignition of ISO 15025:2016. Pre-test conditioning of the test specimen by laundering is not required. Adherence to the following criteria must be assessed for a material or garment passing this test:*

(a) *No specimen shall give flaming to the top or either side edge.*

(b) *No specimen shall give hole formation.*

(c) *No specimen shall give molten or flaming debris.*

(d) *The mean value of the after flame time shall be equal to or less than 2 seconds.*

(e) *The mean value of the afterglow time shall be equal to or less than 2 seconds.*

2.240. **Design Requirement (Essential).** *The material making up the outer layer of CBRN ALSE which is worn as the outer layer of clothing must be subject to Test Procedure B – Bottom Edge Ignition of ISO 15025:2016. Pre-test conditioning of the test specimen by laundering is not required. Adherence to the following criteria must be assessed for a material or garment passing this test:*

(a) *No specimen shall give flaming to the top or either side edge.*

(b) *No specimen shall give hole formation.*

(c) *No specimen shall give molten or flaming debris.*

(d) *The mean value of the after flame time shall be equal to or less than 2 seconds.*

Superseded

(e) *The mean value of the afterglow time shall be equal to or less than 2 seconds.*

2.241. **Design Requirement (Essential).** *The weight, size and materials of a CBRN ALSE mask must comply with paragraph 8 of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.242. **Design Requirement (Essential).** *Integration of CBRN ALSE must be conducted in accordance with the instructions contained in Air and Space Interoperability Council - ADV PUB ASM 4084 Methodology for Integration Testing of Aircrew Clothing and Equipment.*

(a) **Tailoring Advice.** ADV PUB ASM 4084 uses non proscriptive language such as 'should' rather than terms such as 'must' or 'shall'. This design requirement mandates that all portions of ADV PUB ASM 4084 must be considered, but compliance findings of 'not applicable' can be assessed as acceptable.

2.243. **Design Requirement (Essential).** *CBRN ALSE must facilitate the elimination of bodily waste.*

(a) **Tailoring Advice.** CBRN ALSE intended for short term wear must facilitate urination. Failing to do so is likely to result in wearers self-restricting fluid intake which could lead to dehydration. CBRN ALSE intended for longer term wear must accommodate defecation and the management of menstrual blood flow.

(b) **Guidance Material.** Management of diet and use of medication, both under the supervision of an aviation medical officer, can assist in managing the requirement for defecation and managing menstrual blood flow.

2.244. **Design Requirement (Essential).** *CBRN ALSE masks must either interface with existing ICS equipment or contain ICS equipment with an equivalent level of performance.*

2.245. **Design Requirement (Essential).** *If a CBRN mask is to be used with supplemental oxygen, materials used in the mask must be assessed as suitably fire resistant, at the intended temperature ranges, and oxygen concentration levels to which the mask will be exposed by applying relevant materials standards and requirements prescribed within Section 3 Chapter 6.*

2.246. **Design Requirement (Recommended).** *CBRN ALSE should incorporate anti-suffocation and anti-drown protection as described by paragraph 11e of Air Force Interoperability Council Air Standard ASM 4067 Ed1 v2.*

2.247. **Key Considerations.** The following key considerations should be taken into account when introducing CBRN ALSE to ADF service:

(a) CBRN ALSE forms part of a CBRN protection capability. It cannot be effective without other elements of such a capability such as decontamination.

(b) CBRN ALSE can be used in a 'quick don' configuration. This could be used in the use cases of don prior to emergency egress from a CBRN protected platform, don for only part of a mission, or don in response to a detected CBRN threat. In the use case of don for part of a mission, a capability to confirm the absence of contamination prior to doffing is required. In the use case don in response to a detected CBRN threat, a CBRN threat warning mechanism is required.

(c) The user of CBRN ALSE intended for use in a 'quick don' role will require the ability to rapidly don and doff the equipment without assistance in the intended use environment. CBRN ALSE intended for permanent wear during missions can reasonably require the assistance of ALSE tradesmen or other crew members for donning and doffing.

Superseded

(d) Exposure to foreign object contamination such as dust, sea spray, water or large amounts of sweat can reduce the effectiveness or useful life of CBRN ALSE.

(e) Unaided speech communications with ground crew or passengers is expected to be difficult in some aviation environments. The use of CBRN ALSE can further hinder such communication. Features in a CBRN ALSE system to aid the ability of wearers to participate in unaided voice communications are desirable.

ADDITIONAL ALSE GUIDANCE

2.248. ALSLMU review and amend the ALSE Standards prescribed in this chapter on an ongoing basis with the aim to maintain contemporary and traceable design requirements for each ALSE Domain. Before applying ALSE standards prescribed in this chapter, ALSLMU must be engaged for the latest advice as published requirements may become obsolete as a result of these reviews.

2.249. Contact ALSLMU for advice or assistance in accessing referenced standards via ALSLMU.DeskOfficer@defence.gov.au.

Superseded

MISSION PLANNING SYSTEMS

INTRODUCTION

3.1 Computer-based Flight and Mission Planning Systems (hereafter referred to as MPS) provide substantial efficiencies for aviation flight and mission planning over traditional approaches. MPS consist of software applications that allow maps, charts, weather, intelligence and aircraft performance data to be used in developing navigation solutions (eg routes, approaches, terminal procedures), communication settings, flight and mission calculations (eg fuel, leg times), and other pertinent aeronautical data. MPS may include visual software tools optimised for specific aircraft roles, and automate the computations associated with aircraft specific flight/mission planning. Once the mission information has been generated, it is printed (eg kneeboards, strip charts), or alternatively written onto a data storage device (eg PCMCIA flash disk, or proprietary data transfer module) for transfer to aircraft systems (eg FMS, navigation system, EFB). Some modern MPS also include functions to transmit and receive flight/mission information via datalink, either at the commencement of a flight/mission, or as real time updates throughout a flight/mission. MPS may also be used for post-flight/mission debriefing.

3.2 With the advancement of performance based navigation, and the aircraft equipment that supports these types of navigation, MPS are being used in more challenging and potentially hazardous ways (eg aeronautical data supporting required navigation performance). Therefore, any MPS applications transferring, translating, manipulating or generating aeronautical information in this context should be designed and assured commensurate with the integrity requirements for the data they process.

Scope

3.3 This chapter presents the Authority prescribed airworthiness design requirements for MPS.

MPS DESIGN REQUIREMENTS

General MPS Requirements

3.4 **Design Requirement (Essential).** *The worst credible failure condition and the associated data criticality level for the aeronautical data produced by MPS must be established using formal System Safety tools and techniques.*

3.5 The above design requirement can be satisfied by following a defined systematic approach, as detailed in a system safety program, for identifying, analysing and evaluating hazards to determine the worst credible failure condition associated with the use of the MPS. The Authority prescribed system safety airworthiness design requirements are presented in:

(a) DASDRM Section 2 Chapter 2 – System Safety.

Superseded

3.6 The worst credible failure condition of the MPS can be used to determine the data criticality of the aeronautical data. The following data criticality levels are defined by the International Civil Aviation Organisation (ICAO) in Annex 15 (Chapter 3) to the Convention on International Aviation:

(a) **Critical data (Assurance Level 1).** The data if erroneous, would prevent continued safe flight and landing or would reduce the ability to cope with adverse operating conditions to the extent that there is a large reduction in safety margins or functional capabilities. There is a high probability when trying to use corrupted critical data that an aircraft would be placed in a life threatening situation.

(b) **Essential Data (Assurance Level 2).** The data if erroneous, would reduce the ability to cope with adverse operating conditions to the extent that there is a significant reduction in safety margins. There is a low probability when trying to use corrupted essential data that an aircraft would be placed in a life threatening situation; and

(c) **Routine Data (Assurance Level 3).** The data if erroneous, would not significantly affect aircraft safety. There is a very low probability when trying to use corrupted routine data that an aircraft would be placed in a life threatening situation.

3.7 The failure condition definitions for aeronautical data are intended to be compatible with the existing aircraft safety assessment process of MIL-STD-882 and ARP4754/4761, these correlate to the design assurance requirements of RTCA/DO-178C, as presented in Table 3–1. ICAO data criticality and data process assurance level are aligned to the existing failure condition definitions as shown in Table 3–1.

Table 3-1: Relationship between Failure Condition Categories and Data Process Assurance Levels

	RTCA/ DO-178C	ICAO Annex 15	RTCA/ DO-200B

Superseded

Superseded

MIL-STD-882 and ARP 4754/4761					
Failure Condition Category	**Effect**	**Design Assurance Level**	**Data Criticality**	**Definition**	**Data Process Assurance Level**
Catastrophic	Failure conditions that would prevent continued safe flight and landing.	A			
Hazardous / Severe Major	Failure conditions that would reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be: (1) a large reduction in safety margins or functional capabilities, (2) physical distress or higher workload such that the flight crew could not be relied on to perform their tasks accurately or completely, or (3) adverse effects on occupants including serious or potentially fatal injuries to a small number of those occupants.	B	Critical	The data if erroneous, would prevent continued safe flight and landing or would reduce the ability to cope with adverse operating conditions to the extent that there is a large reduction in safety margins or functional capabilities. There is a high probability when trying to use corrupted critical data that an aircraft would be placed in a life threatening situation.	1
Major	Failure conditions that would reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload or in conditions Impairing crew efficiency, or discomfort to occupants, possibly including injuries.	C	Essential	The data if erroneous, would reduce the ability to cope with adverse operating conditions to the extent that there is a significant reduction in safety margins. There is a low probability when trying to use corrupted essential data that an aircraft would be placed in a life-threatening situation.	2

Superseded

Minor	Failure conditions that would not significantly reduce aircraft safety, and that would involve crew actions that are well within their capabilities. Minor failure conditions may include, for example, a slight reduction in safety margins or functional capabilities, a slight increase in crew workload, such as routine flight plan changes, or some inconvenience to occupants.	D				
No Safety Effect	Failure conditions that do not affect the operational capability of the aircraft or increase crew workload.	E		Routine	The data if erroneous, would not significantly affect aircraft safety. There is a very low probability when trying to use corrupted routine data that an aircraft would be placed in a life threatening situation.	3

3.8 **Design Requirement (Essential).** *The MPS must be assured to a level commensurate with the worst credible failure condition and data criticality level.*

3.9 The above requirement can be satisfied by applying appropriate validation and/or verification techniques along with the required level of software assurance as presented in Table 3-2. To allow an application of the relevant validation and verification design features and assurance requirements with MPS functional components, it is necessary to define a means of categorising MPS functions. In RTCA/DO-200B this is done using the data processing phases of receive, assemble, translate, select, format and distribute. However these terms are defined in the context of the whole aeronautical data process, and not just MPS components. Therefore, the ADF approach to MPS functions is to use the guidewords of Transfer, Format, Manipulation, and Generation for MPS components (defined in paragraph 13).

3.10 The guidewords, in conjunction with the data assurance level of the aeronautical data element in question, are used to determine which validation and verification techniques and assurance requirements need to be implemented by the MPS (refer Table 3–2). The alternative to validation and verification techniques identified in Table 3–2 is to assure that design faults that could introduce errors are absent. Of course, the absence of design faults cannot be conclusively demonstrated. Software assurance techniques are used to provide confidence, commensurate with the severity of failure, that design faults are absent.

Table 3-2: Design and Assurance Requirements for MPS Functions

Superseded

MPS Functional Guideword	Data Assurance Level	Validation and Verification Techniques	OR	Absence of Verification and Validation
Transfer	1 (Critical)	Digital Error Detection[1] OR Feedback / Readback Verify[2]	OR	MPS Components that perform the Transfer function are qualified commensurate with RTCA/DO-178C Level A or B
	2 (Essential)	Digital Error Detection[3] OR Feedback / Readback Verify[4]	OR	MPS Components that perform the Transfer function are qualified commensurate with RTCA/DO-178C Level C or D*
	3 (Routine)	No detection and handling required		
Formatting	1 (Critical)	Feedback / Reversibility Check[2] OR Independent Redundancy[5]	OR	MPS Components that perform the Formatting function are qualified commensurate with RTCA/DO-178C Level A or B
	2 (Essential)	Feedback / Reversibility Check[4] OR Independent Redundancy[5]	OR	MPS Components that perform the Formatting function are qualified commensurate with RTCA/DO-178C Level C or D*
	3 (Routine)	No detection and handling required		
Manipulation / Generation	1 (Critical)	Feedback / Reversibility Check[2] OR Independent Redundancy[5]	OR	MPS Components that perform the Manipulation / Generation function are qualified commensurate with RTCA/DO-178C Level A or B
		AND		
		Logical Consistency Checks OR Semantic Consistency Checks		
	2 (Essential)	Feedback / Reversibility Check[4] OR Independent Redundancy[6]	OR	MPS Components that perform the Manipulation / Generation function are qualified commensurate with RTCA/DO-178C Level C or D*
		AND		

Superseded

		Logical Consistency Checks OR Semantic Consistency Checks
	3 (Routine)	No detection and handling required

Notes:

1. MPS components that performs the Digital Error Detection should be qualified commensurate with RTCA/DO-178C Level A or B
2. MPS components that performs the Feedback should be qualified commensurate with RTCA/DO-178C Level C
3. MPS components that performs the Digital Error Detection OR Feedback / Readback Verify should be qualified commensurate with RTCA/DO-178C Level C or D
4. MPS components that performs the Feedback / Readback Verify should be qualified commensurate with RTCA/DO-178C Level D or Verification Tool Requirements
5. At least one of the MPS components that constitute the Independent Redundancy should be qualified commensurate with RTCA/DO-178C Level C or D
6. At least one of the MPS components that constitute the Independent Redundancy should be qualified commensurate with RTCA/DO-178C Level D or Verification Tool Requirements

* Note the difference between RTCA/DO-178C Level C and D is notable, and therefore the safety assessment process must make it explicit which severity failure condition the data element relates to. It also means there may be limitations to the extent to which tools used for Essential data in one context may be used in an alternative context.

Note that the Digital Error Detection qualification requirements (e.g., generate and check) are more onerous than the other verification techniques as the generated Digital Error Detection code is typically used by other downstream data processing tools/ steps for error detection.

3.11 The various validation and verification techniques that can be implemented are defined in:

(a) RTCA/DO-200B – Standards for Processing Aeronautical Data – Appendix C.

3.12 Software assurance levels and associated objectives are prescribed in:

(a) RTCA/DO-178C – Software Considerations in Airborne Systems and Equipment

3.13 The MPS functional guidewords used in Table 3-2 are defined below along with the suitable validation and/or verification techniques that can be applied:

(a) **Transfer.** The MPS directly transfers the source data to the data transfer device, in the same format, without change. This type of MPS function is suitable for protection using digital error detection mechanisms as described in RTCA/DO-200B Appendix C.

(b) **Format.** The MPS takes static source data, and through a set of pre-defined formatting requirements, reformats the source data into a new format for writing to the data transfer device. The extent of changes to the source data is confined to format changes (eg DAFIF to ARINC424), including the unit changes, word data type, and frame packing strategy. The unit changes (eg meters to feet) will involve some form of calculation. The MPS does not generate any new information as a result of dynamic source data or user input. Feedback and independent redundancy are the most suitable means of MPS components determining if errors have been introduced into the data, as described in RTCA/DO-200B Appendix C.

Superseded

(c) **Manipulation.** The MPS takes a combination of static and dynamic source data, and through a set of pre-defined requirements, manipulates (or translates) the source data for writing to the data transfer device. Manipulation may include the production of new information as a result of calculations based on static source data, but does not include the provision of data input by the user. Feedback and independent redundancy are the most suitable means of MPS components determining if errors have been introduced into the data, as described in RTCA/DO-200B Appendix C.

(d) **Generation.** Through a combination of static and dynamic source data, and keyboard input from the user, the MPS generates new data to be loaded onto the data transfer device. The validation methods described in RTCA/DO-200B Appendix C are the most suitable methods of ensuring the resultant generated data is valid.

Aeronautical Data Requirements

3.14 **Design Requirement (Essential).** *Aeronautical data produced by the MPS, with a data criticality of Critical or Essential, must meet the established data quality requirements prescribed in:*

(a) RTCA/DO-200B - Standards for Processing Aeronautical Data.

3.15 The aeronautical data quality requirements should be established by the user and supplier of the aeronautical data and be clearly documented. Aeronautical data quality is defined as the degree or level of confidence that the data provided meets the requirements of the user. Aeronautical data quality requirements include levels of accuracy, resolution, assurance, traceability, timeliness, completeness, and format. Data quality requirements are defined in RTCA/DO-200B.

MPS GUIDANCE

3.16 Further guidance on MPS acquisition/modification projects and in-service engineering support agencies can be provided by the chapter sponsor.

Superseded

ELECTRONIC FLIGHT BAGS

INTRODUCTION

4.1 An Electronic Flight Bag (EFB) is a digital information system for a flight deck crew member, which performs functions in support of flight operations or duties. EFBs can display a variety of aeronautical data or perform calculations (e.g. performance data, fuel calculations, etc.), and some EFB systems carry out more challenging functions not previously achievable with paper based products (e.g. interactive chart viewers, interactive checklists, navigation displays, datalink services, etc.). With EFB systems being used for more challenging and potentially hazardous functions it is imperative that EFB systems are designed with a level of integrity commensurate with their intended function.

Scope

4.2 This chapter presents the Authority prescribed airworthiness design requirements for EFB systems. The EFB design requirements are based largely on Federal Aviation Administration (FAA) and European Aviation Safety Agency (EASA) EFB guidance, however, unlike EASA/FAA the requirements in this chapter focus on technical issues whereas the FAA and EASA guidance also consider the operational management of EFBs to complement the technical requirements. The Authority is exploring whether operational regulations, and perhaps operational approvals, should be employed as an adjunct to the design requirements in this chapter. A decision on the need for operational regulation/approval should be made by mid-2022.

EFB AIRWORTHINESS DESIGN REQUIREMENTS

4.3 An EFB is a system comprising of hardware, a resident operating system, hosted software applications (maps, databases, etc.), and where required mounting components and physical interfaces for connecting to aircraft power and data ports, etc. An EFB may be designed to be installed as part of the aircraft configuration, be portable with a combination of installed hardware mounting components and physical connections, or be portable without physical connectivity to the aircraft. Installed elements of an EFB are considered to be an aircraft part and appliance per the DASR and are subject to aircraft type certification approval.

4.4 Portable EFBs are typically specific approval role equipment and the requirements prescribed in Section 5 Chapter 6 – Role Equipment and Portable Electronic Equipment are equally applicable and must be considered prior to authorising a portable EFB for use.

Identification and analysis of failure conditions

4.5 The potential failure effects of an EFB influence the hardware design, software design and level of integration required, and a system safety analysis needs to be undertaken to identify and analyse EFB failure conditions. Depending on the severity of the identified failure conditions an EFB may need to be installed into the aircraft.

Superseded

4.6 **Design Requirement (Essential).** *A system safety analysis must be utilised to determine the worst credible failure condition of the EFB.*

4.7 The usage of EFBs may introduce hazards that affect safe operation of Defence aircraft. For the initial EFB design and any subsequent modification to the design, a system safety analysis must be carried out to determine the worst credible failure condition of the EFB and each installed software application. The Authority prescribed system safety airworthiness design requirements are presented in Section 2 Chapter 2 – System Safety.

4.8 **Design Requirement (Essential).** *EFBs with a failure condition classified greater than Minor (FAA AC 2X.1309) must be installed into the aircraft and are subject to aircraft type certification approval.*

4.9 Portable electronic devices used as EFBs are typically not designed to be certified for aviation use and the lack of an aviation focus during their design makes it be difficult to achieve the required level of assurance for a failure condition greater than Minor (FAA AC 2x.1309). As a result portable EFBs are limited to hosting software applications with intended functions limited to a Minor (FAA AC 2x.1309) failure effect condition. EFBs that have been evaluated to have a worst credible failure condition greater than Minor (FAA AC 2x.1309) must have documented evidence demonstrating that the EFB hardware and software has been assured commensurate with the worst credible failure condition classification.

Portable EFB systems

4.10 Portable EFBs are generally COTS-based computers, considered to be PEE with no airworthiness design, production, or installation approval for the device with its internal components and applications limited to designs with a maximum failure condition of Minor (FAA AC 2X.1309).

4.11 **Design Requirement (Essential).** *Portable EFBs that have been evaluated to have a worst credible failure condition equivalent to Minor (FAA AC 2x.1309) must have documented evidence demonstrating that the EFB, operating system and hosted application software can perform the intended functions and do not provide false or misleading information.*

4.12 To demonstrate that the EFB and hosted software applications can perform the intended functions, the high level software requirements for the use of these applications on the EFB must be documented, and a verification program (functional and robustness) conducted. The verification program should assess the accuracy, availability and timeliness of the EFB applications. The verification program should also pay particular attention to the EFB operating system and hosted applications to demonstrate that they meet their intended function and do not provide confusing or misleading information. The above design requirement can be satisfied by complying with requirements detailed in the following documents:

(a) EASA Decision (ED) 2014/001/R – Airworthiness and Operational Considerations for Electronic Flight Bags, Annex II – AMC 20-25, or

(b) FAA Advisory Circular (AC) 120-76D – Authorization for Use of Electronic Flight Bags.

4.13 Depending on the intended use and concept of operation, portable EFBs used in aircraft may be secured on flight crew or in/to an existing aircraft part or have permanent arrangements to restrain the EFB and/or physically interface with the aircraft.

Superseded

4.14 **Design Requirement (Essential).** *Mounting and interfaces (if any) to aircraft shall form part of the aircraft type design and satisfy the applicable airworthiness requirements prescribed in the aircraft type certification basis.*

4.15 Where there is a need to have permanent arrangements for securing EFBs, or physically interface with the aircraft, any hardware associated with the interface is subject to aircraft type certification approval. The above design requirement can be satisfied by complying with requirements detailed in the following documents:

(a) EASA Decision 2014/001/R – Airworthiness and Operational Considerations for Electronic Flight Bags, Annex II – AMC 20-25, or

(b) FAA AC 20-173 – Installation of Electronic Flight Bag Components.

Installed EFBs

4.16 Installed EFBs with either a Minor (FAA AC 2X.1309) or greater than Minor (FAA AC 2X.1309) failure condition are integrated into the aircraft and will need to demonstrate compliance with the aircraft type certification basis.

4.17 **Design Requirement (Essential).** *Installed EFB hardware, operating system and applications must be designed to meet the safety objectives associated with EFB failure conditions and satisfy the applicable airworthiness requirements prescribed in the aircraft type certification basis.*

4.18 Guidance for installing EFBs and complying with the above requirement is detailed in the following documents:

(a) EASA Decision (ED) 2014/001/R – Airworthiness and Operational Considerations for Electronic Flight Bags, Annex II – AMC 20-25, or

(b) FAA Advisory Circular (AC) 120-76D – Authorization for Use of Electronic Flight Bags.

EFB GUIDANCE

4.19 Further guidance on EFBs is available through contacting the Chapter sponsor.

Superseded

AERIAL DELIVERY OF MATERIEL

INTRODUCTION

5.1 Aerial delivery of materiel is the transport of cargo on ADF aircraft via three possible modes: internal air transport (Air Land (AL)) in fixed and rotary wing aircraft, Air Drop (AD) from fixed wing aircraft, and helicopter underslung load carriage (External Lift (EL)). Air Mobility Training and Development Unit (AMTDU) are responsible for the certification of cargo load items for transport via these three aerial delivery modes. Cargo load items interface with and have an appreciable effect on the safe operation of the carrying aircraft. Certification of cargo load items for aerial delivery (a load clearance) must adhere to the standards prescribed by this chapter to ensure the output of safe aerial delivery products.

5.2 When acquiring equipment with a requirement for aerial delivery, the Project Office or Defence organisation conducting the acquisition shall demonstrate compliance with all requirements relevant to the desired transport mode as listed under this Chapter to facilitate a successful aerial delivery clearance.

Scope

5.3 The design requirements prescribed in this Chapter are applicable to 'Australian Unique Loads'. This includes equipment (load items) acquired specifically for transport via ADF aircraft.

5.4 Load items with a current cargo load clearance from the US internal air transport load certification agency Air Transportability Test Loading Activity (ATTLA) or UK aerial delivery load certification agency Joint Air Delivery Test and Evaluation Unit (JADTEU) may be exempt from this standard. Contact AMTDU for further information.

AERIAL DELIVERY STANDARD

5.5 This chapter adopts the following US suite of standards and international standards for Aerial Delivery as the Authority prescribed criteria for the Aerial Delivery of Australian Unique Loads:

Air Land Standards

(a) MIL-STD-1791D Change 1 – Designing for Internal Aerial Delivery in Fixed Wing Aircraft

(b) MIL-DTL-27443F – Pallets, Cargo, Aircraft, Type HCU-6/E, HCU-12/E

(c) IATA Dangerous Goods Regulations (58th Edition)

(d) ISO Standards for Freight Containers (ISO668, ISO1161, ISO1496 Series, ISO3874)

Air Drop Standards

(e) MIL-STD-814D – Tiedown, Suspension & Extraction Provisions

Superseded

(f) MIL-HDBK-669 – Loading Environment and Related Requirements for Platform Rigged Airdrop Material (3 Feb 1997, Revalidated 11 Jun 2002)

(g) MIL-STD-1791-1 Criteria for Non-Standard Airdrop Equipment and Payloads (16 May 2016)

(h) US Manual FM 4-20.103/MCRP 4-11.3C/TO 13C7-1-11 – Airdrop of Supplies and Equipment: Rigging Containers (02 Sep 2005)

(i) AFIC AIR STD AM 4099 Criteria for the Design of Equipment Required to be Air Transported or Airdropped from Fixed Wing and Rotary Wing Transport Aircraft

External Lift Standards

(j) MIL-STD-913A – Requirements for the Certification of Sling Loaded Military Equipment for External Transportation

(k) USA ARMDL Technical Report 72-36 Design Guide for Load Suspension Points, Slings and Aircraft Hard Points (July 1972)

(l) AFIC AIR STD AM 4076 Technical Criteria for the Transport of Cargo by Helicopter

Standard Applicable to All Modes

(m) MIL-STD-209K – Interface Standard for Lifting and Tiedown Provisions.

5.6 Where the above adopted standards are unclear, unspecified or deficient, the following supplements are prescribed and are essential for Australian Unique Loads. Collectively, the standards prescribed at Paragraph 5.5 and the Australian supplements listed below form the Aerial Delivery Standard for Australian Unique Loads:

Air Land Supplements (Detailed in Annex A, Table 1)

(a) Restraint of secondary cargo (Item 1.4.2)

(b) Restraint analysis for load items restrained with lashings (Item 1.4.3)

Air Drop Supplements (Detailed in Annex A, Table 2)

(c) Impact survivability (Items 2.1.3 and 2.2.7)

(d) Energy dissipation system (Items 2.1.4 and 2.2.8)

(e) Restraint of secondary cargo (Item 2.2.10 – subordinate to Item 1.4.2)

(f) Restraint analysis for Air Drop load items restrained with lashings (Item 2.2.11 – subordinate to Item 1.4.3)

(g) Extraction provisions – Item extracted loads (Item 2.2.12)

(h) Suspension provisions – Item suspended loads (Item 2.2.13)

External Lift Supplements (Detailed in Annex A, Table 3)

(i) Load item lifting provisions – Strength (Item 3.1.3)

(j) Frame members (Item 3.1.5 – linked to Item 3.1.3)

(k) Spreader bars (Item 3.1.6 – linked to Item 3.1.3)

Superseded

(l) Restraint of secondary cargo (Item 3.4.1 – linked to Item 1.4.3)

(m) Applicability of general requirements (Item 3.1.7 – linked to Item 4.1.2)

Supplements Applicable to All Modes (Detailed in Annex A, Table 4)

(n) Shackles – Strength (Item 4.1.2)

(o) Secondary cargo tie down provisions – Strength (Item 4.2.3 – AD component only)

Supplements Applicable to Air Land and Air Drop (Detailed in Annex A, Table 5)

(p) Attachment point number (Item 5.1.2)

(q) Attachment point strength rating (Item 5.1.3).
Instruction and Guidance for Application of the Authority Prescribed Standard

5.7 All elements of the Aerial Delivery Standard that are applicable to a cargo load item and its desired mode(s) of transport are classified as 'essential' in accordance with the definitions contained in Section 1, Chapter 1.

5.8 Standards listed at Paragraph 5.5 may not be applicable in whole to a cargo load item for the selected aerial delivery mode(s). Annex A provides specific instruction and guidance on application of the Aerial Delivery Standard prescribed by the Authority at Paragraphs 5.5 and 5.6. Where the cited document is not publicly available, Annex A republishes the information for use in the Australian context.

5.9 The design data applicable to Australian aircraft is contained in the following documents and must be used in conjunction with the Aerial Delivery Standard prescribed at Paragraphs 5.5 and 5.6:

(a) TO 1C-17A-9 Loading Instructions C-17A Aircraft (or aircraft data from Appendix B.4 of MIL-STD-1791B)

(b) AAP7211.031-9 Loading Instructions Hercules C-130J-30

(c) AAP7211.045-9 C-27J Spartan Aircraft Cargo Loading and Offloading Manual

(d) AAP7210.026-1 Flight Manual Chinook CH-47F

(e) AAP7210.015-1 Flight Manual Black Hawk (S-70A-9)

(f) AAP7210.023-1 Flight Manual MRH90 Taipan

(g) Air Force Air Movements Manual

(h) AAP7279.001-1-1 Air Drop of Materiel General – Container Rigging and Associated Equipment

(i) AAP7279.001-1-2 Air Drop of Materiel General – Platform Rigging and Associated Equipment

(j) AAP7210.021-9-4 Helicopter External Load Rigging Procedures.

TAILORING OF AERIAL DELIVERY DESIGN REQUIREMENTS

5.10 Prescribing, revising and interpreting Aerial Delivery design requirements is the responsibility of the Defence Aviation Safety Authority, or if delegated, the Delegate of the Safety Authority (DoSA). Any proposed tailoring of the design requirements prescribed in this Chapter (including requests for

Superseded

deviations, modifications or special consideration) must be submitted to DASA/AMTDU for a determination on the acceptability of the tailoring.

REVISION NOTE

5.11 The content of this Chapter replaces DEF(AUST) 9009A Designing for Aerial Delivery of Equipment by Fixed and Rotary Wing Aircraft, dated 08 Jul 2009. The linkage between this Chapter and previous iterations of approved aerial delivery design standards is described in the below historical record of this standard.

Historical Record (all documents listed below are superseded)
RAAF Specification Engineering A5018
DEF(AUST) 9009 dated 19 Sep 2003
DEF(AUST) 9010 dated 29 Jul 2004
DEF(AUST) 9009A dated 08 Jul 2009

Annexes:

A. Instruction and Guidance for Application of the Aerial Delivery Standard

B. Aerial Delivery Verification Methods

C. Glossary

Superseded

ANNEXES

ANNEX A - INSTRUCTION AND GUIDANCE FOR APPLICATION OF THE AERIAL DELIVERY STANDARD

INSTRUCTION AND GUIDANCE FOR APPLICATION OF THE AERIAL DELIVERY STANDARD

(a) This Annex contains instruction and guidance for application of the Aerial Delivery Standard cited at Section 5, Chapter 5, Paragraphs 5.5 and 5.6. This Annex consists of the following parts:

1. Part 1 – Applicable to load items to be internally transported by Defence fixed and/or rotary wing cargo aircraft, termed Air Land (AL) transport.
2. Part 2 – Applicable to load items to be air dropped by Defence fixed wing cargo aircraft, termed Air Drop (AD) transport.
3. Part 3 – Applicable to load items to be suspended beneath Defence rotary wing aircraft for the purposes of transporting items, termed External Lift (EL) transport (also commonly known as Helicopter Sling Loading (HSL)).
4. Part 4 – Applicable to attachment points, lifting provisions and cargo tie down provisions and is therefore applicable to load items to be transported via AL, AD and EL modes.
5. Part 5 – Applicable to attachment points used for AD and AL modes of transport.

MODE	PART 1	PART 2	PART 3	PART 4	PART 5
Air Land (AL)	✓	N/A	N/A	✓	✓
Air Drop (AD)	✓	✓	N/A	✓	✓
External Lift (EL)	Item 1.4.3 (for item restraint)	N/A	✓	✓	N/A

(b) Definitions for the verification methods are contained at Annex B of Section 5, Chapter 5. Unless otherwise specified, only one of the listed verification methods for each design requirement needs to be applied.

PART 1 – AIR LAND TRANSPORT CERTIFICATION REQUIREMENTS AND VERIFICATION

(a) Table 1 presents instructions and guidance for application of the Aerial Delivery standard for AL transport via fixed and rotary wing aircraft. Table 1 makes reference to United States and international standards (as cited by Section 5, Chapter 5, Paragraph 5.5) to establish the requirement with some Australian supplements (as cited by Section 5, Chapter 5, Paragraph 5.6). The Australian Air Publications are used for design data. Where the international

Superseded

standards refer to Air Transportability Test Loading Activity (USAF), AMTDU is the applicable agency.

(b) The following standards and publications contain the relevant requirements and design data, and are to be read in conjunction with this part:

Adopted Standards (as cited by Section 5, Chapter 5, Paragraph 5)

1. MIL-STD-1791D Change 1 – Designing for Internal Aerial Delivery in Fixed Wing Aircraft
2. MIL-DTL-27443F Pallets, Cargo, Aircraft, Type HCU-6/E, HCU-12/E
3. IATA Dangerous Goods Regulations (58th Edition)
4. ISO Standards for Freight Containers (ISO668, ISO1161, ISO1496 Series, ISO3874) Relevant Guidance Documents
5. MIL-STD-810G Environmental Engineering Considerations and Laboratory Tests

Design Data

6. AAP7211.031-9 Loading Instructions Hercules C-130J-30 (Section 4)
7. TO 1C-17A-9 Loading Instructions C-17A Aircraft (Section 4) or aircraft data from Appendix B.4 of MIL-STD-1791D Change 1
8. AAP7210.026-1 Flight Manual Chinook CH-47F (Chapter 6)
9. AAP7211.045-9 C-27J Spartan Aircraft Cargo Loading and Offloading Manual (Section 4)
10. AAP7210.023-1B Flight Manual MRH90 Taipan (Section 1)
11. AAP7210.015-1 Flight Manual Black Hawk (S-70A-9) (Section 8)
12. Air Force Air Movements Manual.

Table 1 – Air Land Transport Certification Requirements and Verification

Item	Instruction for Application of Standard	Guidance	Verification
Load Item Size			
1.1.1	Cargo Compartment Clearances Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.1.1 noting the following Australian aircraft design data applies: i. The cargo compartment dimensions for the applicable ADF aircraft as	Load items meeting these requirements facilitates compatibility with the applicable ADF aircraft. The design of load items should be such that they can be loaded aboard ADF aircraft in their air transport configuration (which may include secondary cargo, see guidance under Item 1.4.2)	Demonstration (as required) *or* Inspection

Superseded

	defined in the reference material listed at Part 1, Paragraph 2. ii. Loading clearances as per AFAMMAN: a. Compartment inflight clearance of 5in from the aircraft structure applies for sprung cargo. b. Compartment inflight clearance of 3in from aircraft structure applies for un-sprung cargo. c. A loading/ unloading clearance of 1in from the aircraft structure applies.	whenever possible. The design goal is to qualify items for Air Land transport under the most restrictive combination of requirements. When necessary, sectionalisation or partial disassembly of items may be performed as a means of achieving this goal; however, care should be taken not to exceed the user's organic capability to reassemble the load item within a specified time period under field conditions. When considering the aircraft limits, the load item's air transport configuration is to be kept in mind. For example, the load item's air transport size and weight are to include any secondary cargo attached during transport. During the design phase, inspection or analysis are more suitable methods for verification. AMTDU will also typically conduct a load trial to demonstrate that these requirements are met, particularly where a load item closely approaches the specified limits.	
1.1.2	Projection Limits Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.1.1.1 noting that the projection limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		Demonstration (as required) *or* Inspection
1.1.3	Vehicle Overhang Refer to MIL-STD-1791D Ch1 Section 5, Clause 5.3.1.1.2 noting that the vehicle overhang limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		
1.1.4	Ramp Cresting Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.1.1.3 noting the following Australian aircraft design data applies: i. The ramp cresting limits for the applicable ADF aircraft		Demonstration (as required) *or* Inspection

Superseded

	as defined in the reference material listed at Part 1, Paragraph 2. ii. Loading clearance of 1in clearance from the ramp crest (as per AFAMMAN) applies.		
1.1.5	Emergency Access Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.1.1.5. The safe passageway (access aisle) for ADF aircraft is defined in AFAMMAN (Part 5 Sect 1 Chap 2).		Demonstration (as required) *or* Inspection
Item Weight Limits			
1.2.1	Gross Weight and Centre of Gravity Refer to: i. MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.1. ii. Item 4.1.8(vii) for Centre of Gravity marking. The gross weight and centre of gravity limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.	Load items meeting these requirements facilitates compatibility with the applicable ADF aircraft. This applies to all Item Weight Limit Clauses (1.2.1 – 1.2.8)	Analysis (i) Inspection (ii)
1.2.2	Aircraft Compartment Limits Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.2 noting the aircraft compartment limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		Analysis
1.2.3	Aircraft Roller Conveyer Limits		Analysis

Superseded

	Refer to MIL-STD-1791D Ch1, Section 5, Clause, 5.3.2.3 noting the aircraft roller conveyer limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		
1.2.4	Concentrated Load, Linear Loads, Tongue Loads, Axle Loads and Axle Spacing Limits, Wheel/Tyre Loads Refer to MIL-STD-1791D Ch1, Section 5, Clauses 5.3.2.4, 5.3.2.5, 5.3.2.6, 5.3.2.7, 5.3.2.8 and 5.3.2.9. The concentrated load, linear loads, tongue loads, axle loads and axle spacing limits, wheel/tyre loads limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.	It is recommended that load items are designed to use the higher capacity treadway sections of the aircraft floor.	Analysis
1.2.5	Vehicle Suspension Limits Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.12.	This requirement ensures that the vertical down restraint required by item 1.4.1 is achieved.	Inspection *or* Analysis *or* Test
1.2.6	Ramp Hinge Limits Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.13 noting the ramp hinge limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		Inspection
1.2.7	Tracked Vehicles Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.11 noting the tracked vehicle limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.	Note that the shoring requirements differ between C-130J and C-17 aircraft. The minimum shoring requirements are 1/2in or at least the depth of the grouser for C-17A and 3/4in for C130. CH-47D, CH-47F and C-27J do not currently have published limits for tracked vehicles. If required, consult AMTDU for further information.	Analysis

Superseded

1.2.8	Solid Wheel Loads Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.2.10 noting the solid wheel load limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.		Analysis
Special Equipment			
1.3.1	Special Tools and Transportability Equipment Refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.7.4.	The need for specialised tools and ground support equipment to prepare and load/offload cargo items is to be avoided to the maximum extent consistent with mission requirements. Where such tools/equipment is required, the type and quantity is to be identified and reported to the procuring activity or program office so that this may be communicated to AMTDU.	Inspection *and* Demonstration
1.3.2	Material Handling Equipment (MHE) Where MHE is required, refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.7.4.1.	Where specialist or purpose built MHE is required to assist in item disassembly/assembly and loading, it is to be within the organic capability of the using unit to make the load item operationally ready within the specified time and personnel constraints.	Inspection *and* Demonstration
1.3.3	Shoring Requirements: Approach, Rolling, Parking, Bridge, and Sleeper shoring Should the use of shoring be unavoidable, refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.7.1. The shoring requirements for the applicable ADF aircraft are defined at AFAMMAN (Part 5, Sect 1, Chap 1).	Items should incorporate features which enhance their handling characteristics so that they can be on/off loaded without the use of shoring. The use of any type of shoring is to be avoided to the maximum extent possible as shoring often causes logistical difficulties for air transport. If the load item's weight exceeds the non-treadway cargo compartment limits of the aircraft, it is to be designed to use the higher capacity	Analysis *and/ or* Demonstration

Superseded

		treadway sections of the aircraft floor. In all cases, loads imposed by such load items are not to exceed limit loads as defined in the reference material listed at Part 1, Paragraph 2. The load item designer is to apply all reasonable effort to design out the need for shoring before shoring use is permitted. Where shoring is unavoidable, it is beneficial for the load item designer to consider including a purpose designed shoring kit as part of the load item air transport configuration.	
Load Item Restraint			
1.4.1	Restraint Load Factors The load item is to: i. Be capable of surviving the conditions specified at MIL-STD-1791D Ch1, Section 5, Clause 5.3.3. ii. Be restrained under the conditions specified at MIL-STD-1791D Ch1, Section 5, Clause 5.3.3.1 with the following addition for rotary wing aircraft: **Restraint Load Factors for Internal Carriage of Cargo (AL)** **(Adopted from AFIC AIR STD AM 4076)**	When designing the load item, the designer is to consider the how the User will apply and achieve the required restraint.	Analysis

Direction	Load Factor[1] (Rotary Wing AL)
Up	2.0 G

Superseded

	Down	4.0 G		
	Forward	4.0 G		
	Aft	2.0 G		
	Lateral	1.5 G		
	[1]Factors are used to determine ultimate loads. The load item need not remain functional but is to maintain unitary integrity; the load item structure may yield but not break.			
1.4.2	Restraint of Secondary Cargo If a requirement exists for the load item to be air transported with secondary cargo, refer to MIL-STD-1791D Ch1, Section 5, Clauses 4.3.6.3b and 5.3.6.8. Items of any mass that are able to puncture the walls of its containing device are to be restrained to the requirements of the primary item. Loose items of low mass (an individual item weighing less than 50lb) are not subject to the above restraint requirement, however, are to be securely restrained to prevent them from becoming a hazard. Restraint of secondary cargo is to be determined in accordance with Item 1.4.3. (Australian Supplement)	For this requirement, secondary cargo refers to any item intended to be transported with the primary load item as a unit such as internal items, auxiliary equipment and integral equipment. This can include (but is not limited to) cargo carried by vehicle/trailers, internal cargo within a containing device, purpose built mission modules and integral items such as jerry cans, fire extinguishers spare wheels carried using purpose built provisions. General cargo and other Load Items which can be transported within a containing device are subjected to the same acceleration forces as the containing device. Restraint of the containing device itself does not necessarily result in adequate restraint of the cargo items internal to the containing device. Unless these cargo items are independently restrained to appropriate levels, they become damaged under the influence of flight loads or may, at the extreme, deform the container walls and may cause damage to the aircraft.	Analysis

Superseded

		Any item stored in a containing device is to be secured to meet the inflight restraint requirements. Most containing devices may also be designed to carry auxiliary equipment or have built-in equipment for the mission of the unit. This can be met by placing cargo tie down provisions within the containing device (as per items 4.2.1 – 4.2.6) and securing the equipment to these rings. Holding stanchions can also be used for the equipment. The guidance from MIL-STD-1791D Ch1, Appendix A, A.9.7 is to be followed for items of low mass.	
1.4.3	Restraint Analysis for Load items Restrained with Lashings The available restraint for a load case is the sum of all lashing force components corresponding to the direction of the load case under analysis. The lashing force component must be calculated using its rated strength and angle of application (see MIL-STD-1791D Ch1, Appendix A, Clause A.4.2.2 for guidance). The following conditions also apply (Australian Supplement): i. When assessing the strength capacity of the attachment point for use in the restraint pattern, all force components resulting from the applied lashing(s) are considered to act simultaneously. ii. Lashings contributing to available restraint for a	AMTDU is responsible for ensuring this requirement is met. Nonetheless, awareness of this requirement is important during load item design. Restraint of load items is achieved by application of lashings (typically CGU-1/B (5k lbf), MB-1 (10k lbf) or, MB-2 (25k lbf) chains for AL and Dacron straps (6k or 10k lbf) for AD) from the load item's attachment points to the aircraft floor rings or load item's cargo tie down provisions (for restraint of primary or secondary items respectively). A 'restraint pattern' is the collective use of the above elements. A 'load case', for the purposes of restraint analysis, is the loading condition produced by the inertial forces of the load item's air transport configuration mass after application of the restraint load factor (as obtained from	Analysis

Superseded

	particular load case are applied at similar lengths and angles. iii. Lashings are symmetrically distributed about the Load Item's centre of gravity. iv. No mixing of different lashing types (e.g. chains of different rated strengths, or mixing of chains and straps) is permitted. v. The strength contribution of all lashings must be de-rated to the strength of the weakest element of the restraint pattern for the load case being analysed. vi. Friction is not included in determination of available restraint. vii. Lashings must have an unimpeded, straight line of action from the floor to the attachment point. viii. A minimum of four lashings are to be used.	Table 1-1) in a particular direction. This inertial load is considered to be statically applied. A length and angle variation of less than approximately 20% is acceptable for (ii). If (ii), (iii) and (iv) are satisfied, lashings can be considered to load at the same rate. Otherwise, a detailed analysis based on lashing stiffness (a function of length, angle, distribution and lashing type) is required. Where multiple lashings are used for a single attachment point, consideration should be given to all forces from the applied lashings acting on the attachment point.	
Air Land Transport Environment			
1.5.1	Shock and Vibration For fragile items or items sensitive to shock and vibration including (but not limited to) Nuclear, Biological, Chemical Cargo and Explosive Ordnance), refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.5.1.	This design requirement is to be complied with where shock and vibration may impact on item serviceability, structural integrity or safety. The test methods detailed under Methods 514.7 and 516.7 MIL-STD-810G may be used for verification of the vibration and shock requirements. The vibration spectrum of the air transport environment for the	Analysis *or* Test

Superseded

		different modes and different aircraft is to be requested from the relevant Aircraft Systems Program Offices. For C-130J aircraft, the power spectral density data of DEF STAN 00-35 Part 3, Chapter 2-01 Annex A, A.2.5 may be used. If this design requirement is deemed to be not applicable, the Project Office responsible for the load item is required to provide a statement to AMTDU certifying that the shock and vibration introduced by the air transport environment will not adversely affect the load item serviceability, structural integrity or safety.	
1.5.2	Rapid Decompression If pressure vessels are being transported refer to MIL-STD-1791D Ch1, Section 5, Clause 5.3.5.2.	This clause is applicable to load items designed to contain a fluid within a designated pressure vessel.	Analysis *or* Test
1.5.3	Hazardous Materials/Inflight Requirements/Venting Where the load item is capable of carrying or having attached to itself hazardous materials, the containment or packaging of these materials is to be in accordance with the IATA Dangerous Goods Regulations.	The containment, packaging, or other preparation of these materials is to be performed and certified such that they do not jeopardise the safety of cargo handlers, flight crews, or the aircraft.	Inspection
Additional Requirements for Containers, Shelters and Cabins (Containing Devices)			
1.6.1	Containing Devices – General Containing devices are to meet the following ISO standards: ISO 668 Classification, Dimensions and Ratings ISO 1161 Freight Containers – Corner Fittings	Reassessment or recertification after modification of a containing device is the responsibility of the load item designer. Modifications of a containing device which may invalidate the original ISO certification include (but are not limited to):	Inspection *(for compliance to ISO)* Analysis *or* Test *(for modified container strength)*

Superseded

	ISO 1496 Series – Freight Containers (as applicable to the container type) ISO 3874 (Clause 4.2.4) Should the containing device be modified after issue of its ISO certification, an assessment of the containing device's structural integrity and attachment points' (corner points) strength is to be conducted to ensure the original certification remains valid.	i. container wall panel cut-outs ii. changes to the container frame iii. permanent installation or removal of integral equipment iv. changes to the corner attachment point(s) v. changes to the cargo tie down provisions available	
1.6.2	Size and Weight Limitations for Air Transport of Containing Devices The overall size and gross weight of containing devices is to meet: i. MIL-STD-1791D Ch1, Clause 5.3.2.14 and Table II (for 463L Pallets). Any weight limitations are to be indelibly marked on the containing device. ii. The roller conveyor limitations (see Item 1.2.3)	Consideration should also be given to: i. The availability of sufficient attachment points on the containing device and the aircraft floor to sufficiently restrain the load item to the inflight restraint criteria. ii. Containing devices of a length greater than the equivalent of a train of three pallets have less operational flexibility due to the necessary MHE required for loading/ unloading not always being available in some locations. iii. The ADF does not have MHE that can load/unload items of	Inspection

Superseded

		a length greater than the equivalent of a train of five pallets.	
Load Items to Interface with the 463L System			
1.7.1	463L System Compatibility A load item to be transported on its own base or which incorporates an integral pallet base is to be designed to be compatible with the 463L air cargo handling system. Refer to MIL-STD-1791D Ch1 Clause 5.3.6.7. Configuration of the aircraft cargo handling systems for the applicable ADF aircraft are defined at Paragraph 2. The aircraft roller limits for the applicable ADF aircraft are defined in the reference material listed at Part 1, Paragraph 2.	Smaller items which can be palletised should be designed to take maximum advantage of the weight and cube capability of the HCU-6/E pallet. Load items designed with a 463L compatible base may be of custom length provided consideration given to the weight and roller conveyor limits. For example, the weight of a load item with length equal to two and half 463L pallets may be up to two and a half times the maximum rigged weight of a single 463L pallet (10,355lb x 2.5 = 25,888lb). The load item mass is to be distributed uniformly along its length to ensure roller and linear load limits are not exceeded. Consideration should be given to the guidance provided for Item 1.6.2 (see guidance 1.6.2 (i) and (ii)). If there is difficulty in accessing the listed drawings from MIL-DTL-27443, AMTDU can be contacted for assistance.	Inspection *and* Demonstration

Superseded

PART 2 – AIR DROP CERTIFICATION REQUIREMENTS AND VERIFICATION

(a) Table 2 presents instructions and guidance for application of the Aerial Delivery standard for AD transport via fixed wing aircraft. Table 2 makes reference to United States and international standards (as cited by Section 5, Chapter 5, Paragraph 5.5) to establish the requirement with some Australian supplements (as cited by Section 5, Chapter 5, Paragraph 5.6). The Australian Air Publications are used for design data. Where the international standards refer to U.S. Army Soldier Systems Center, AMTDU is the applicable agency. Additional background information on available air drop types and methods is provided at paragraphs 4 to 6.

(b) The following standards and publications contain the relevant requirements and design data, and are to be read in conjunction with this part:

Adopted Standards (as cited by Section 5, Chapter 5, Paragraph 5)

1. MIL-STD-814D – Tiedown, Suspension & Extraction Provisions
2. MIL-HDBK-669 – Loading Environment and Related Requirements for Platform Rigged Airdrop Material (3 Feb 1997, Revalidated 11 Jun 2002);
3. US Technical Memorandum ASD-TM-77-1 Criteria for Non-Standard Airdrop Loads (August 1992)
4. US Manual FM 4-20.103/MCRP 4-11.3C/TO 13C7-1-11 – Airdrop of Supplies and Equipment: Rigging Containers (02 Sep 2005)
5. AFIC AIR STD AM 4099 Criteria for the Design of Equipment Required to be Air Transported or Airdropped from Fixed Wing and Rotary Wing Transport Aircraft

Design Data

6. AAP7279.001-1-1 Air Drop of Materiel General – Container Rigging and Associated Equipment
7. AAP7279.001-1-2 Air Drop of Materiel General – Platform Rigging and Associated Equipment.

(c) Design requirements for the air drop of ammunition are not included in this standard; air drop of ammunition is to be considered on a case by case basis.

(d) Types of Air Drop:

1. **Free Drop** – Free drop is the delivery of non-fragile items without the use of parachutes or other retarding device. Items, which are to be delivered by free drop, require special preparation to prevent damage from landing shock. Items such as liquids require durable, flexible containers, while other items require padding or special containers. Free drop is only performed with small robust items.
2. **High Velocity Air Drop** – High velocity air drop is the delivery of items rigged in air drop containers with Energy Dissipating Material (EDM) attached to the underside of the load and a stabilising device, such as a small parachute packed for high velocity air drop attached to the top of the load. The stabilising device is designed to minimise oscillation of the load and to create just enough drag to hold the load upright during descent so that it will land on the EDM. The design rate of descent for high velocity drop is 21 to 27 m/sec (70 to 90 ft/sec). High velocity is only performed with container loads.
3. **Low Velocity Air Drop** – Low Velocity Air Drop (LVAD) is the delivery of various items or supplies and equipment with the use of cargo parachutes and Energy Dissipating Material (EDM) attached to the underside of the load. Loads are prepared for air drop either by packing the items in air drop containers or by rigging them to platforms or skidboards. Cargo parachutes are then attached to the load or to the platform to retard the descent of the load and to ensure minimum landing shock. The design rate of descent for low velocity drop is 8 m/sec (28.5 ft/sec) or less.

Superseded

(e) Methods of Air Drop:

1. Ramp or Door – Using the ramp or door method, the loads are manually ejected from the aircraft.

2. Gravity Extracted Load – In the gravity method of air drop, the load restraining ties are released manually, mechanically or by a release parachute. This allows the load to roll out of the cargo compartment of the aircraft.

3. Extraction – In the extraction method, an extraction parachute pulls the load out of the cargo compartment. This method is used to extract loads rigged on airdrop platforms. Refer to AAP 7279.001-1-2.

(f) Types of Air Drop Loads:

1. **Container loads** – Container loads is a term used to group together the methods of air dropping supplies contained either with a number of straps or within a specifically designed webbing container. Container loads can be door bundles, compacts, A22 containers or Alternate Container Delivery System loads (ACDS).

2. **Door Bundles** – Door bundles are generally small container loads delivered from the side door of the drop aircraft, rigged to comply with the specific delivery aircrafts dimensional and weight limitations.

3. **Compacts (Ramp Bundles)** – Compacts are generally referred to as a small container load weighing no more than 500lbs. Within the ADF, compacts are delivered from the ramp of the drop aircraft.

4. Platform suspended, platform extracted – Platform suspended loads are air drop loads delivered generally on a Type V air drop platform using the integral platform side rail suspension points to suspend the load. Platform extracted loads utilise the Type V platform extraction bracket which is integral to the platform to extract the load from the aircraft.

5. Item suspended, item extracted – Item suspended loads are loads suspended under the parachute using some part of the load item. Item extracted loads use a part of the load item to connect the extraction parachute to extract the load from the aircraft.

6. **Item suspended, platform extracted** – Item suspended loads are loads suspended under the parachute using some part of the load item. Platform extracted loads utilise the Type V platform extraction bracket which is integral to the platform to extract the load from the aircraft.

(g) The suitability of an air drop method and type for a load item depends on the load item's ability to satisfy the appropriate design requirements listed in Table 2.

Table 2 – Air Drop Transport Certification Requirements and Verification

Item	Instruction for Application of Standard	Guidance	Verification
CDS – Door Bundles , Compacts, A-21 Container Loads and A-22 Container Loads			

Superseded

2.1.1	Dimensions The dimensions are not to exceed the value published for the applicable ADF aircraft and container delivery method as defined at AAP7279.001-1-1 Section 4. A lateral clearance of 50 mm (2 in) is required around the load when fitted to the skidboard to allow clearance between the load item and the aircraft centre line vertical Restraint or side rail system. (Sourced from US Manual FM 4-20.103/MCRP 4-11.3C/TO 13C7-1-11, Table 2-2)	The allowable dimensions for a given container delivery method may vary between aircraft types. The maximum height published in the AAPs includes the skid board and parachute.	Inspection
2.1.2	Weight The suspended weight is not to exceed the value published for the applicable ADF aircraft and container delivery method as defined at AAP 7279.001-1-1 Section 4. The rigged weight divided by the largest surface area of the load item is to be greater than the value published in AAP 7279.001-1-1 Section 4. (Sourced from US Manual FM 4-20.103/MCRP 4-11.3C/TO 13C7-1-11, Paragraph 1-1 and 1-6)	The term surface area loading is not used in AAP 7279.001-1-1; this term refers to the load item mass divided by the platform area.	Inspection
2.1.3	Impact Survivability (Australian Supplement) The requirement from item 2.2.8 applies to CDS loads.	See guidance provided for items 2.2.7 – 2.2.8.	See Item 2.2.7
2.1.4	Energy Dissipation System (Australian Supplement) Energy dissipation systems for air drop must be designed to support deceleration forces equivalent to the G loading forces in Table 2-1.		See Item 2.2.8
	Platform Load Limitations		
2.2.1	Air Land Requirements The Air Land requirements detailed under Part 1, Items 1.2.3 (Roller Conveyor Limits), and 1.5.1 – 1.5.3 (Inflight environment requirements) apply to the Air Drop item in the rigged configuration.	The Air Drop item is classified as an Air Land load until it is released from its restraint(s) to the aircraft for despatch. Compliance with the identified requirements is therefore essential	See items 1.2.3, 1.5.1 – 1.5.3

Superseded

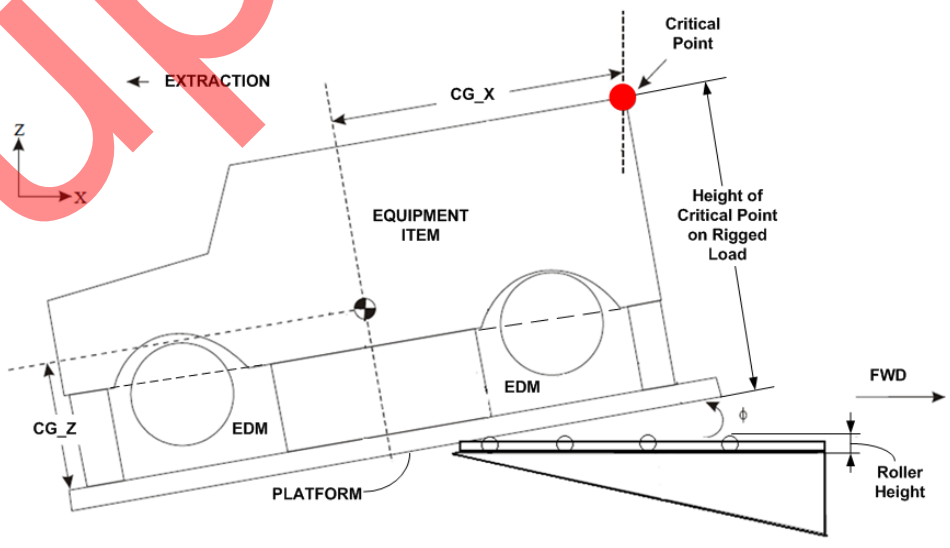
		for platform air drop loads.	
2.2.2	Weight The rigged weight of the air drop item is to be within the range published at AAP 7279.001-1-2 Section 1 Chapter 6 for the chosen platform length. The minimum rigged weight per platform surface area is to be greater than the value published at AAP 7279.001-1-2 Section 1 Chapter 5. The maximum suspended weight is not to exceed the value published at AAP 7279.001-1-2 Section 3 Chapter 1 for the chosen platform length. (Sourced from ASD-TM-77-1, August 1992, Paragraph 9)	AMTDU is responsible for the determination of the configuration and the certification of the rigged air drop load. The Type V platform is available in multiple lengths (8ft, 12ft, 16ft, 20ft, 24ft and 32ft). The choice of platform length is dependent on (but not limited to) the CONOPs, the size, shape, weight and centre of gravity of the air drop item. AMTDU is responsible for the selection of a suitable platform length for a given air drop item. Nonetheless, this requirement is to be considered during load item design. The weight of ADE components can be found at AAP 7279.001-1-2. Platform loading is determined using the weight of the air drop item and ADE (excluding platform) and the platform area. As this is dependent on the length of the selected platform, AMTDU is responsible for ensuring this requirement is met. Nonetheless, awareness of this requirement is	Analysis

Superseded

		important during load item design.	
2.2.3	Centre of Gravity The CoG of the completely rigged air drop platform (including an accompanying load if applicable) is to be positioned (longitudinally, laterally and vertically) such that the limitations shown in AAP 7279.001-1-2 Section 1 Chapter 7 are met. (Sourced from ASD-TM-77-1, August 1992, Paragraph 10 and Figure 6)	Longitudinal and Lateral position limits for the platform may be obtained from Figure 1-7-1 of AAP 7279.001-1-2. Vertical position limits are shown at S1C7 Item 3 of AAP 7279.001-1-2.	Analysis or Test
2.2.4	Hang Angle The platform should be approximately parallel to the impact surface prior to drop (Refer to MIL-HDBK-669, Clause 6.1.2).	This requirement exists to reduce damage to the platform and load item on impact. Awareness of this requirement is important during load item design to promote an even weight distribution of the load item. As this is dependent on the positioning of items on the platform, AMTDU is responsible for ensuring this requirement is met. This requirement applies to the hang angle of the rigged air drop platform without the parachute(s). 'Approximately parallel' practically translates to a maximum gradient of one inch per foot of platform length.	Test
2.2.5	Dimensions – Height The height of the rigged air drop item is limited by the critical point during the tip-off phase of air drop (See Figure 2-1). The critical point is to adequately clear the	In the first instance, the maximum allowable height of the rigged air drop load can be estimated using MIL-STD-1791D Ch1	Analysis (required) and Test (required at AMTDU discretion)

Superseded

	surrounding aircraft structure during all phases of air drop transport. The height requirements of items 1.1.1 and 1.1.2 are also applicable. (Sourced from ASD-TM-77-1, August 1992, Paragraph 8)		Figures B-77 (C-17A aircraft) and B-103 (C-130J aircraft). The tip-off phase of air drop occurs once the centre of gravity of the rigged load passes over the edge of the aircraft ramp. This causes the rigged load to rotate as it exits the aircraft. The point most likely to strike the aircraft during rotation is the critical point. See Figure 2-1. As a guide, 5in is considered adequate clearance from the surrounding aircraft structure Load item designers should consider that the allowable height of the rigged air drop item includes several layers of Energy Dissipating Material and the Type V platform thickness (a typical estimate for this is 15in) placed beneath the load item.	



Superseded

<table>
<tr><td colspan="4">Figure 2-1 – Tip-off phase during air drop</td></tr>
<tr><td>2.2.6</td><td>Dimensions – Length and Width

The length and width of the air drop item are to conform to the selected platform dimensions published in 7279.001-1-2 Section 1 Chapter 6 and overhang requirements as published at AAP 7279.001-1-2 Section 1 Chapter 5.

The length and width requirements of Item 1.1.1 are also applicable.

(Sourced from ASD-TM-77-1, August 1992, Paragraphs 8 and 9)</td><td>The dimensions of the rigged air drop loads are dependent on (but not limited to) impact mitigation design and parachute placement. AMTDU is responsible for ensuring this requirement is met. Nonetheless, awareness of this requirement is important during load item design to allow development of a suitable configuration.</td><td>Analysis</td></tr>
<tr><td>2.2.7</td><td>Impact Survivability (Australian Supplement)

Load items must be capable of sustaining minimum vertical deceleration forces (G loading) from Table 2-1 without any detrimental effect on the load item’s function or structure.

Table 2-1 – Vertical deceleration acceleration factors (G loading) for load items to be air dropped

<table><tr><td>Type of load item</td><td>Minimum G Loading</td></tr><tr><td>Mass Loads (robust items)</td><td>28</td></tr><tr><td>Military Spec Vehicles</td><td>MIL-HDBK-669, Section 5, Clause 5.4</td></tr><tr><td>Commercial Earthmoving Equipment</td><td>20</td></tr><tr><td>Commercial Motor Vehicles</td><td>12</td></tr></table></td><td>Flat contact surfaces of sufficient strength to support the impact loads on the underside of the load item (primary structure is ideal) will enable design of a successful energy dissipation system. Surfaces should also be evenly distributed about the load item’s centre of gravity. Load item designers are advised to consider this to facilitate a successful AD load certification

On a typical configuration, the deceleration force of 20G will be met by using 3.1 square feet of energy dissipating crushing area for each 1000 pounds of item air drop weight and a total thickness of 12 inches of EDM composed of four</td><td>Analysis, Test</td></tr>
</table>

Superseded

<table>
<tr>
<td>2.2.8</td>
<td>Energy Dissipation System (Australian Supplement)

Energy dissipation systems for air drop must be designed to support deceleration forces equivalent to the G loading forces in Table 2-1.</td>
<td>layers of 3 inch thick panels; however, configuration will vary from item to item.

AMTDU is responsible for the design of the Energy Dissipation System. The Energy Dissipation System typically consists of Energy Dissipating Material (EDM) placed underneath the load item, supported at primary structure components.</td>
<td>Analysis or Test</td>
</tr>
<tr>
<td>2.2.9</td>
<td>Restraint Load Factors

The load item is to:

i. Be capable of surviving the conditions specified in Table 2-2.

ii. Be restrained under the conditions specified at MIL-STD-1791D Ch1, Section 5, Clause 5.3.3.1 except that Table 2-2 is to be used in lieu of Table IV of MIL-STD-1791C.

Table 2-2 – Restraint Load Factors for Air Drop

(Adopted from AFIC AIR STD AM 4099)

<table>
<tr><th>Direction</th><th>Platform Extracted/ Platform Suspended</th><th>Platform Extracted/ Item Suspended</th><th>Item Extracted/ Item Suspended</th></tr>
<tr><td>Up</td><td>3.0 G</td><td>2.0G</td><td>2.0G</td></tr>
<tr><td>Down</td><td colspan="3">As per Item 2.2.8</td></tr>
<tr><td>Forward</td><td>4.0 G</td><td>4.0G</td><td>4.0G</td></tr>
<tr><td>Aft</td><td>3.0 G</td><td>1.5G</td><td>3.0G</td></tr>
<tr><td>Lateral</td><td>3.0 G</td><td>1.5G</td><td>1.5G</td></tr>
</table>
</td>
<td>When designing the load item, the designer is to consider the how the User will apply and achieve the required restraint.</td>
<td>Analysis</td>
</tr>
</table>

Superseded

	All factors are used to determine yield loads. The load item is not to exhibit permanent deformation upon application of these factors. The load item is to be capable of sustaining an ultimate load of not less than 1.5 times the DLL.		
2.2.10	Restraint of Secondary Cargo (Australian Supplement) The requirement specified by item 1.4.2 applies in conjunction with the applicable restraint load factors for Air Drop from Table 2-2.	See guidance for Item 1.4.2.	See Item 1.4.2
2.2.11	Restraint Analysis for Air Drop Load items Restrained with Lashings (Australian Supplement) Item 1.4.3 applies to determining restraint of all air drop load items restrained using lashings.	See guidance for Item 1.4.3	See Item 1.4.3
2.2.12	Extraction Provisions – Item Extracted Loads The working limit load (or DLL) of the extraction provision is equal to aft load factor from Table 2-2 for item extracted loads multiplied by the rigged weight of the air drop item applied in the direction of extraction. The sustainable ultimate load is not to be less than 1.5 times the DLL. (Australian Supplement) Refer to MIL-STD-814D, Section 5, Clause 5.3.2.1 and 5.3.2.4 for extraction provisions dimensions and location, respectively. The general requirements of items 4.1.1 to 4.1.5 and 4.1.8 of this standard apply to extraction provisions. (Item 4.1.2 is an Australian Supplement)	Item extraction is not the preferred method of extraction. The project is to request advice from AMTDU for the applicability of this method to the load item requiring certification. While MIL-STD-814 states that extraction provisions are to be positioned below the CG, extraction provisions should ideally be positioned as low as possible on the load item.	Analysis orTest
2.2.13	Suspension Provisions – Item Suspended Loads Refer to MIL-STD-814D, Section 5, Clause 5.2 and 5.5.2 for strength and number of suspension provisions. The general requirements of items 4.1.1 to 4.1.8 apply to suspension provisions. (Item 4.1.2 is an Australian supplement.) Note: The definitions of Ultimate Load relative to DLL for this requirement differs to the Annex C Glossary definition. For this item 2.2.13	The project is to request advice from AMTDU for the applicability of this method to the load item requiring certification.	Analysis *or* Test

Superseded

	requirement, the definition provided at MIL-STD-814D, Clause 5.2.2 applies.		

PART 3 - EXTERNAL LIFT TRANSPORT CERTIFICATION REQUIREMENTS AND VERIFICATION

(a) Table 3 presents instructions and guidance for application of the Aerial Delivery standard for EL transport via rotary wing aircraft. Table 3 makes reference to United States and international standards (as cited by Section 5, Chapter 5, Paragraph 5.5) to establish the requirement with some Australian supplements (as cited by Section 5, Chapter 5, Paragraph 5.6). The Australian Air Publications are used for design data. Where the international standards refer to U.S. Army Soldier Systems Center, AMTDU is the applicable agency.

(b) The following standards and publications contain the relevant requirements and design data, and is to be read in conjunction with this part:

(c) **Adopted Standards (as cited by Section 5, Chapter 5, Paragraph 5)**

1. MIL-STD-913A – Requirements for the Certification of Sling Loaded Military Equipment for External Transportation

2. USA ARMDL Technical Report 72-36 Design Guide for Load Suspension Points, Slings and Aircraft Hard Points (July 1972)

3. AFIC AIR STD AM 4076 Technical Criteria for the Transport of Cargo by Helicopter

Design Data

4. AAP7210.021-9-4 Helicopter External Load Rigging Procedures.

(d) Due to the nature of certification for EL, the application of the standard is not straightforward and some interpretation of the requirements in Table 3 will inevitably be required. Consequently, design organisations will need to seek advice from AMTDU. Where such advice is required, this is identified in the guidance column.

Table 3 – External Lift Transport Certification Requirements and Verification

Item	Instruction for Application of Standard	Guidance	Verification
Load Item Lifting Provisions			
3.1.1	Number Refer to MIL-STD-209K, Section 5, Clause 5.1.1.	Load items that meet this requirement allows compatibility with current Aerial Delivery Equipment used for EL.	Inspection
3.1.2	Location Refer to MIL-STD-209K, Section 5, Clause 5.1.2.	Load items that meet this requirement will promote load stability and allows compatibility with	Analysis *or* Test

Superseded

	Lifting Provisions should be reasonably symmetrical about the longitudinal and lateral axes passing through the load item's Centre of Gravity (or Centre of Gravity range) as determined in its air transport configuration(s) noting that the requirement from 3.3.2 is to also be met.	current Aerial Delivery Equipment used for EL. Advice for dual point lift configurations, where deemed appropriate, should be sought from AMTDU on a case by case basis.	
3.1.3	Strength Lifting Provisions, load spreading devices (including those subject to compressive loads), interference points, connecting equipment structure and any load bearing components are to have sufficient strength to withstand the Helicopter Sling Load (HSL) design limit load (DLL) applied to the lifting provisions. The above listed components are to be capable of sustaining an ultimate load of not less than 1.5 times the HSL DLL. The HSL DLL is to be determined using the worst case loading condition which is defined by the largest product of the HSL materiel lift point load factor (determined IAW Appendix A of MIL-STD-209K) and sling leg tension. i. Single Point Slinging Configurations: In the early stages of load item design, where the sling configuration is not fully defined, the HSL DLL is to be determined IAW MIL-STD-209K Appendix B applied at all angles within the range defined in Figure 3-1 below (Australian Supplement). ii. Dual Point Slinging Configurations: In the early stages of load item design, where the sling configuration is not fully defined, the minimum strength of each Lifting Provision is to be at least equal to 30 percent of the total air transport weight multiplied by the HSL materiel lift point load factor. This force is to be applied at all angles within the range defined in Figure 3-2 below (Australian Supplement).	The project is to request advice from AMTDU if a dual point slinging configuration must be employed. Compliance to this requirement can only be fully achieved after consultation with AMTDU for an assessment of a suitable proposed slinging configuration. The load item weight used for analysis may be defined by an air transport weight in place of the GVM/ Gross Weight. This configuration will need to be carefully considered and communicated to AMTDU. The worst case loading condition is the combination of material lift point load factor and air transport weight that produces the greatest HSL DLL. The worst case loading condition might *not* occur at the maximum air transport weight and consideration should be given to this to	Analysis *and* Test

Superseded

	iii. All Slinging Configurations: Once the slinging configuration is defined by AMTDU, the HSL DLL is to be determined using the sling leg tension obtained from the simulated trial (conducted as per Item 3.3.3). Note that the general requirements from items 4.1.1 to 4.1.8 apply to lifting provisions. (Item 4.1.2 is an Australian Supplement)	determine the HSL DLL. The load item air transport configuration(s) and CoG envelope should be determined prior to any analysis being carried out on the lift points. A shift in CoG position will affect the distribution of loads between sling legs. Changes to CoG location after the air transport configuration is provided to AMTDU is to be avoided as they may invalidate AMTDU load certification activities being conducted for the load item. Further, when defining an air transport configuration for the vehicle, the aircraft limitations (such as lifting capacity and payload/range) is to be considered. Where strength is determined by analysis, appropriate design factors are to be applied. For welded structures this is to include a weld capacity reduction factor as per Australian Standard AS4100 or equivalent international welding standards. Reduction and fitting factors for fasteners are to be used where applicable.	

Superseded

		Any structure where there are abrupt changes in geometry is to make allowance for appropriate stress concentration factors in the analysis.	

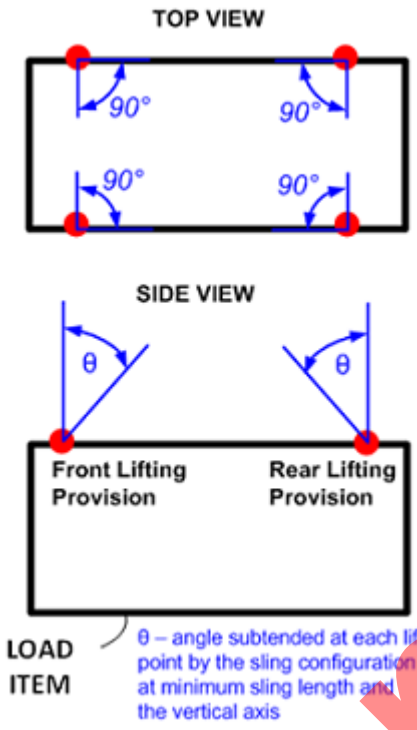


Figure 3-1 – Required angle range for the HSL DLL for single point lifting configuration

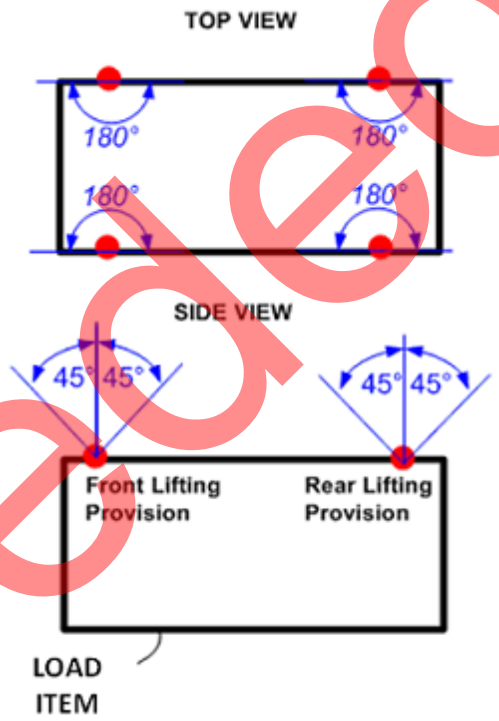


Figure 3-2 – Required angle range for the HSL DLL for dual point lifting configuration

3.1.4	Dimensions Refer to MIL-STD-209K, Section 4, Clause 4.11.	No guarantee of provision strength results from conformity to this requirement (see Item 3.1.3 for strength requirement).	Inspection
3.1.5	Frame Members Refer to MIL-STD-913A, Section 4, Clause 4.1.4 noting that Items 3.1.1 – 3.1.4 apply to frame members (Item 3.1.3 is an Australian Supplement).	See glossary for a definition of Frame Members.	See 3.1.1 – 3.1.4 *(i)* Inspection *(ii)*
3.1.6	Spreader Bars Where spreader bars are approved for use, refer to MIL-STD-913A, Section 4, Clause 4.1.5.	Spreader bars are considered a deviation and AMTDU is to be consulted if their use is	Inspection *and*

Superseded

	Spreader bars or cable guides are to be used during sling configuration testing and are to withstand all sling leg forces imposed noting the ultimate load requirement from Item 3.1.3 also applies. (Item 3.1.3 is an Australian Supplement)	intended for EL of load items. Where used, it is strongly advised that spreader bars be part of the complete equipment schedule Spreader bars are means for altering the sling leg angles to achieve the minimum sling leg clearance specified at Item 3.2.1. Designers should consider using cable guides or reinforcement of sling contact points on the load item as an alternative to requiring spreader bars. Cable guides may be used as an alternative to spreader bars. Refer to Item 3.1.4 for appropriate minimum diameter (D_{min}) dimension of cable guide openings for sling compatibility.	Analysis *or* Test
3.1.7	Applicability of General Requirements The general requirements detailed under items 4.1.1 to 4.1.8 apply to Lifting Provisions. (Item 4.1.2 is an Australian Supplement)	See guidance for items 4.1.1 to 4.1.8.	See items 4.1.1 to 4.1.8
Load Item Physical Properties			
3.2.1	Load Item Basic Data The load item designer or Project office is to provide the following Basic Data for the load item as listed by USA ARMDL Technical Report TR 72-36 (Jul 72), Page 1 (republished as follows):	The load item designer should endeavour to position the load item centre of gravity forward of its centre of pressure. The desired centre of gravity position should be a	Inspection

Superseded

	i. Weight and centre of gravity location (or range) in the air transport configuration(s). ii. Information relating to the outline and external shape. iii. Information relating to the location and strength of substructure.	point at which not more than one third of the total surface area is located forward of the centre of gravity. This greatly improves the likelihood of achieving stability during EL. Methods to alter the Centre of Gravity and centre of pressure are available in AMTDU EL designs; however, these methods are not to be relied upon due to significant operational implications. The asymmetry ratio (Item 3.3.2) is to be considered in conjunction with this requirement as it may constrain the centre of gravity position relative to the centre of pressure.	
Requirements for Sling Configuration			
3.3.1	Minimum Sling Leg Clearance Refer to MIL-STD-913A, Section 4, Clause 4.2.2. This clause applies to all sling types including textile/webbing slings and chain leg slings.	To define a lifting configuration, at a minimum, the following are to be specified: i. How the load is suspended from the aircraft hook/s (single point/ dual point/ tandem) ii. Number of sling legs iii. Individual sling leg lengths	Inspection *or* Demonstration

Superseded

3.3.2	Asymmetry of Lifting Provisions The ratio of the largest vertical sling force to the smallest vertical sling force is not to exceed 1.2 (requirement republished from USA ARMDL Technical Report TR 72-36 (Jul 72), Pages 2 and 21)	iv. Load item air transport configuration(s) and weight (or weight range) v. Load item Maximum Projected Frontal Area. Part of determining a suitable sling configuration initially involves selection of single point, dual point or tandem lifting configurations. Single point lift with four lifting provisions is typically adopted for most EL load items. If dual or tandem lifting configurations are being sought, AMTDU is to be contacted in the first instance.	Analysis *or* Test
3.3.3	Simulated Trial – External Lift (Static Lift Testing) Static lift testing for each proposed lifting configuration is to meet the requirements of MIL-STD-913A, Section 5, Clause 5.1 with the following exception: i. Strength limits for EL ADE used by the ADF apply in lieu of Table I of MIL-STD-913A. This information can be obtained from AAP7210.021-9-4.	AMTDU is responsible for certifying the compliance of a load item in its EL configuration to this requirement. Nonetheless, this requirement should be considered during load item design to facilitate successful EL certification of the load item.	Analysis *and* Test
3.3.4	Load in-flight stability The load item is to be lifted in-flight beneath applicable rotary wing aircraft in its proposed air	Consideration is to be given to test the worst case air transport configuration(s).	Test

Superseded

<table>
<tr><td></td><td>transport configuration(s) to determine load in-flight stability. Refer to Clause 5.3b-c MIL-STD-913A for the required test outcomes.</td><td>Guidance provided at Item 3.1.3 for the worst case loading configuration is applicable to this requirement.

AMTDU is responsible for certifying the compliance of a load item in its EL configuration to these design requirements. To facilitate successful EL certification of the load item, these requirements are to be considered during load item design.</td><td></td></tr>
<tr><td colspan="4">Secondary Cargo</td></tr>
<tr><td>3.4.1</td><td>Restraint of Secondary Cargo (Australian Supplement)

Secondary cargo carried by the underslung primary cargo item, is to be restrained to the cargo restraint load factors from Table 3-1.

Table 3-1 – Secondary Cargo Restraint Load Factors for EL
<table><tr><th>Direction</th><th>Load Factor

(Rotary Wing EL)</th></tr><tr><td>Up</td><td>2.0 G</td></tr><tr><td>Down</td><td>Internal Cargo: 2.0 G

External Cargo: Material Lift Point Load Factor Determined at Item 3.1.3</td></tr><tr><td>Forward</td><td>1.5 G</td></tr><tr><td>Aft</td><td>1.5 G</td></tr><tr><td>Lateral</td><td>1.5 G</td></tr></table></td><td>For this requirement, secondary cargo refers to any item physically connected to the primary load item during external lift such as internal items, external items, auxiliary equipment and integral equipment. This can include (but is not limited to) cargo carried by vehicle/trailers, internal cargo within a containing device, purpose built mission modules and integral items such as jerry cans, fire extinguishers spare wheels carried using purpose built provisions.</td><td>Analysis</td></tr>
</table>

Superseded

	Above factors are used to determine limit loads. The load item is not to exhibit permanent deformation upon application of these factors. The load item is to be capable of sustaining an ultimate load of not less than 1.5 times the DLL. Loose items of low mass (an individual item weighing less than 50lb) are not subject to the above restraint requirement, however, are to be securely restrained to prevent them from becoming a hazard. Where secondary cargo restrained using lashings, refer to Item 1.4.3 for determining the available restraint.		

PART 4 – GENERAL REQUIREMENTS - ATTACHMENT POINTS, LIFTING PROVISIONS AND SECONDARY CARGO TIE DOWN PROVISIONS (AL, AD & EL)

(a) Table 4 presents instructions and guidance for application of the Aerial Delivery standard for attachment points, lifting provisions and/or secondary cargo tie down provisions fitted to a load item to be certified for AL, AD and/or EL. Table 4 makes reference to the adopted United States standard (as cited by Section 5, Chapter 5, Paragraph 5.5) to establish the requirement and also contains Australian supplements (as cited bySection 5, Chapter 5, Paragraph 5.6). Where the international standards refer to a US agency (such as Air Transport Test Loading Activity, U.S. Army Soldier Systems Center, US Army SDDCTEA), AMTDU is the applicable agency

(b) The requirements in referenced by this part are military unique interface requirements developed specifically for ensuring that the attachment points and/or lifting provisions on military equipment (load items) meet the physical, functional and operational environment attributes for ADF aircraft.

(c) The US Standard, MIL-STD-209K Lifting and Tie-Down Provisions, contains the relevant requirements and is to be read in conjunction with this part.

Table 4 – Attachment Points, Lifting Provisions and, Secondary Cargo Tie Down Provisions Certification Requirements and Verification

Item	Requirement	Guidance	Verification
General			
4.1.1	Surface of Provisions Refer to MIL-STD-209K, Section 4, Clause 4.2.	Load items meeting this requirement allow compatibility with current Aerial Delivery Equipment.	Inspection

Superseded

Item	Requirement	Guidance	Verification
4.1.2	Shackles Refer to MIL-STD-209K, Section 4, Clause 4.3 with the following additions: i. The strength of the shackle is to be at least equal to the strength of the attachment point, lifting provision or secondary cargo tie down provision which the shackle is used in conjunction with. This includes any applicable ultimate load considerations. (Australian Supplement) ii. Where a shackle must be fitted to an attachment point, lifting provision or secondary cargo tie down provision, any strength qualification of the provision or restraint pattern developed is to include the change in geometry resulting from the use of the shackle. (Australian Supplement)	This requirement simplifies the air transport configuration of the load item by ensuring shackles always remain with the load item being transported.	Analysis *or* Test
4.1.3	Hub and Axle Requirements The use of wheel hubs and axles for restraint are prohibited IAW the requirements of MIL-STD-209K, Section 4, Clause 4.4.	Wheel hubs and axles are considered primary structure but this does not guarantee their suitability for lifting or restraint. Designers are to always install designated attachment points and/or lifting provisions to load items.	Inspection
4.1.4	Removable Provisions Removable attachment points and lifting provisions are prohibited IAW the requirements of MIL-STD-209K, Section 4, Clause 4.5.	Load items meeting these requirements simplify and ensures consistency of the air transport configuration of the load item. AMTDU is to be consulted if these requirements cannot be met.	Inspection
4.1.5	Freezing and Jamming Refer to MIL-STD-209K, Section 4, Clause 4.6.		Inspection *or* Demonstration

Superseded

Item	Requirement	Guidance	Verification
4.1.6	Stowable Lifting Provisions Where the load item contains stowable lifting provisions, refer to MIL-STD-209K, Clause 4.7.		Demonstration
4.1.7	Provision Dimensions Refer to MIL-STD-209K, Section 4, Clause 4.11. The option presented by MIL-STD-209K, Clause 5.2.3.1 may be utilised for load items weighing 50,000lb or more. If used, refer to MIL-STD-209K, Clause 5.2.4.	Load items meeting this requirement allow compatibility with current Aerial Delivery Equipment. There is **no** guarantee of provision strength that results from conformance to this requirement. Refer to strength requirements for each attachment point or lifting provision.	Inspection
4.1.8	Marking/Identification The load item is to be furnished with a shipping data plate as per MIL-STD-209K, Clause 5.7.1. At a minimum, the shipping data plate is to provide the: i. Proper Shipping Name ii. NSN iii. Overall Length iv. Tyre Pressure (or allowable range) v. Maximum Gross and Unladen Weights (for wheeled vehicles, this is to be identified as individual axle weights) vi. Identification of Attachment Points and /or Lifting Provisions (including their strength and allowable pull angles)		Inspection

Superseded

Item	Requirement	Guidance	Verification
	vii. Centre of Gravity or Centre of Gravity Envelope (essential for tracked vehicles) All attachment points and lifting provisions are to be identified as per MIL-STD-209K, Clause 5.7.2. The shipping data plate is to be updated to incorporate configuration changes made to the load item.		
Secondary Cargo Tie down Provisions - The requirements listed under this clause are applicable to load items with a designated cargo area. Note: the requirements listed below are applicable only to 'secondary cargo tie down provisions' which are not included under 'attachment points' (see the Annex C Glossary for further clarification).			
4.2.1	Number Refer to MIL-STD-209K, Clause 5.4.1.	The intent of this requirement is to ensure that all payloads are restrained to the required inflight load or restraint factors. The following calculation is recommended to determine if sufficient cargo tie down provisions exist for the load item payload mass to be adequately restrained. The value determined is rounded up to the nearest even number: $N_{\min} = \frac{M*(G_{fwd}+G_{aft})}{R*0.75}$ Where this formula results in a value less than four, the minimum number of cargo tie down provisions is four. N_{min} – Minimum number of cargo tie down provisions	Analysis

Superseded

Item	Requirement	Guidance	Verification
		M – Load item mass in air transport configuration G_{fwd}, G_{af} – The applicable restraint load factor in the forward and aft directions (items 1.4.1 or 2.2.9) *R* – Strength Rating of attachment point as per Item 4.2.3	
4.2.2	Location Refer to MIL-STD-209K, Clause 5.4.2.	Secondary Cargo tie down provisions are to be positioned symmetrically around the cargo area, such that cargo can be restrained to satisfy Items 1.4.1 (AL), 2.2.9 (AD), or 3.4.1 (EL) as applicable to the required transport method. Secondary cargo tie down provisions are usually best positioned around the perimeter of the cargo area. The designer is to consider the intended use of the cargo area and types of cargo in the air transport configuration when deciding on the provision location, as this may dictate that provisions be placed in other locations (e.g. centreline, gird pattern, column arrangement).	Inspection
4.2.3	Strength Refer to MIL-STD-209K, Clause 5.4.3 for the strength of secondary cargo tie down provisions. For AL load items, the strength rating is to consider yield and ultimate factors		Analysis *or* Test

Superseded

Item	Requirement	Guidance	Verification
	consistent with the requirements of Item 1.4.1. For AD and EL load items, the strength rating is the allowable Design Limit Load. In addition secondary cargo tie down provisions are to be capable of sustaining an ultimate load of not less than 1.5 times the Design Limit Load. (Australian Supplement – AD only).		
4.2.4	Dimensions Refer to MIL-STD-209K, Clause 5.4.4 for the dimensions of secondary cargo tie down provisions. For cargo areas with a capacity greater than 5000lb, refer to MIL-STD-209K, Clause 5.5.4.	A load item that meets this requirement enables compatibility with current Aerial Delivery Equipment. There is no guarantee of provision strength that results from conformance to this requirement. See Item 4.2.3 for the strength requirement of secondary cargo tie down provisions.	Inspection
4.2.5	Directional Capabilities Refer to MIL-STD-209K, Clause 5.4.6 for the directional capabilities of secondary cargo tie down provisions.		Inspection

Superseded

PART 5 – DETAILED REQUIREMENTS – ATTACHMENT POINTS (AL & AD)

(a) Table 5 presents instructions and guidance for application of the Aerial Delivery standard for attachment points fitted to a load item to be certified for AL and AD. Table 5 makes reference to a United States standard (as cited by Section 5, Chapter 5, Paragraph 5.5) to establish the requirement and also contains Australian supplements (as cited bySection 5, Chapter 5, Paragraph 5.6). Where the international standards refer to a US agency (such as Air Transport Test Loading Activity, U.S. Army Soldier Systems Center, US Army SDDCTEA), AMTDU is the applicable agency

(b) US standards use the terms ‘tie down provisions’ and ‘supplementary tie down’ provisions. This Annex does not differentiate between the two terms and uses the term ‘Attachment Point’ to include both ‘tie down provisions’ and ‘supplementary tie down’ provisions. See the Annex C Glossary for a definition of all terms.

(c) The US Standard, MIL-STD-209K Lifting and Tie-Down Provisions, contains the relevant requirements and is to be read in conjunction with this part.

Table 5 – Attachment Points Certification Requirements and Verification

Item	Requirement	Guidance	Verification
5.1.1	Restraint of Item Refer to MIL-STD-209K, Clause 4.1.		Inspection
5.1.2	Number (Australian Supplement) The minimum number of attachment points fitted to the load item is to conform to the value determined by the formula below. The value determined is rounded up to the nearest even number: $$N_{\min} = \frac{M*(G_{fwd} + G_{aft})}{R*0.75}$$ Where this formula results in a value less than four, the minimum number of attachment points is four. N_{min} – Minimum number of attachment points M – Load item mass in air transport configuration G_{fwd}, Ga_{ft} – The applicable restraint load factor in the forward and aft directions (items 1.4.1 or 2.2.9) R – Strength Rating of attachment point as per Item 5.1.3	Load items meeting this requirement allow for the successful design of a restraint pattern for AL and/ or AD modes of transport.	Analysis
5.1.3	Strength Rating (Australian Supplement) The magnitude of the strength rating of the attachment points is to be 5000lbf (applicable to AL only), 6000lbf (applicable to AD only), 10,000lbf, 20,000lbf, 25,000lbf **or** 50 000lbf (AL & AD). **For AL load items**, the strength rating is to consider yield and ultimate factors	The listed rating magnitudes are determined from the rated strengths of the types of lashings used on board ADF aircraft. AMTDU is to be consulted if the selected attachment point rating value varies from the provided values.	Analysis *or* Test

Superseded

<table>
<tr><th>Item</th><th>Requirement</th><th>Guidance</th><th>Verification</th></tr>
<tr>
<td></td>
<td>consistent with the requirements of Item 1.4.1.

For AD load items, the strength rating is the allowable Design Limit Load. In addition attachment points are to be capable of sustaining an ultimate load of not less than 1.5 times the Design Limit Load.

The strength rating is to:

i. Apply to all attachment points fitted to the load item.

ii. Apply to the full angle range through which a lashing may access the attachment point.

iii. Be qualified by analysis or physical testing or a combination of both.

iv. Consider common load paths shared between attachment points for any analysis or testing.</td>
<td>It may be beneficial to ensure front and rear placed attachment points are of whole multiples of the below strengths to allow fitment of multiple lashings.

As a guide, the following table may used to select a suitable target attachment point strength rating based on load item weight:

Table 5-1 – Suggested attachment point strength rating for a given load item weight

<table>
<tr><th>Load item Weight Range (lb)</th><th>Attachment Point Strength Rating (lbf)</th></tr>
<tr><td>0 – 10,000</td><td>5000 (AL)</td></tr>
<tr><td>0 – 10,000</td><td>6000 (AD)</td></tr>
<tr><td>5000 – 40,000</td><td>10,000 (AL & AD)</td></tr>
<tr><td>15,000 – 80,000</td><td>20,000 (AL & AD)</td></tr>
<tr><td>20,000 – 100,000</td><td>25,000 (AL & AD)</td></tr>
<tr><td>> 40,000</td><td>50,000 (AL & AD)</td></tr>
</table>

When qualifying the strength of the attachment point, the designer is to make allowances for the physical and chemical properties of the material</td>
<td></td>
</tr>
</table>

Superseded

Item	Requirement	Guidance	Verification
		(e.g. fatigue, corrosion, galvanic action and harsh environments) and for normal wear and tear during the expected life of the load item. The following should be considered during any analysis or testing conducted for a strength rating: i. The strength of the attachment point through the full angle range. A worst case analysis may be adopted to reduce the number of cases to analyse or test. ii. All relevant failure modes are fully addressed. iii. The exact failure and/or yield point (as applicable) is determined. iv. The analysis or test is representative of the actual forces applied to the APs and supporting structure during air transport. Where strength is determined by analysis, appropriate design factors are to be applied. For welded structures this is to include a weld capacity reduction factor as per Australian Standard AS4100 or equivalent	

Superseded

Item	Requirement	Guidance	Verification
		international welding standards. Reduction and fitting factors for fasteners are to be used where applicable. Any structure where there are abrupt changes in geometry is to make allowance for appropriate stress concentration factors in the analysis.	
5.1.4	Location Refer to MIL-STD-209K, Clause 5.2.2.	MIL-STD-209K, Clause 5.2.2c is to ensure maximum accessibility to facilitate application of lashings at equal lengths and angles. MIL-STD-209K, Clause 5.2.2e is to ensure access to APs as well as ensure sufficient vertical restraint can be achieved with the designed APs.	Inspection

Superseded

ANNEX B - AERIAL DELIVERY VERIFICATION METHODS

AERIAL DELIVERY VERIFICATION METHODS

Inspection is the non-destructive examination of a product or system. It may include simple physical manipulation and measurements. This is generally used to verify physical design features.

Analysis is the use of mathematical modelling and analytical techniques to predict the compliance of a design to its requirements based on calculated data or data derived from system or subsystem testing.

Demonstration is the use of component, subsystem, or system operation to show that a requirement can be achieved by the system. It is generally used for a basic confirmation of performance capability and is differentiated from testing by the lack of detailed data gathering. Often, other verification methods will be used in support of demonstration.

Test is the use of component, subsystem, or system operation to obtain detailed data to verify performance or to provide sufficient information to verify performance through further analysis.

Superseded

GLOSSARY

463L – The common designation for a family of air cargo handling equipment. The 463L system consists of separate, but interdependent, equipment families, including terminals, on-board aircraft cargo handling systems, ground handling equipment, pallets and nets. The pallets with nets are used as an unitisation module and are loaded into the aircraft on roller conveyors. A 463L equipped aircraft has roller conveyor assemblies and restraint rails with integral locks. A pallet/net assembly is secured into the aircraft by these locks. [AL]

Aerial Delivery – The act or process of delivering cargo by air transport, air drop or external lift. [General]

Air drop – Delivery of personnel or cargo from aircraft in flight. There are four current methods of air drop: free drop, low velocity drop, high velocity drop and precision air drop. [AD]

Air Land Transport – Delivery of personnel or cargo from point to point in which the cargo is delivered by air landing. [AL]

Air Land Trial (Load Trial) – A trial evaluating loading of an item(s) to an aircraft (or simulated aircraft) for air transportability certification. Test loadings are normally limited to cases where the characteristics of items are such that analytical means alone are judged insufficient to determine an item's air transport eligibility. Because of the expense and work effort involved, test loadings are normally only performed only with recommendation, approval and support of AMTDU. Generally test loadings require the development and documentation of special procedures for handling and/or restraint. [AL]

Air Transport (Air Land Transport) – The airborne delivery of personnel or cargo from Air Land location to Air Land location by aircraft. [AL]

Air Transport Weight – The weight of the load item in the configuration that it is to be air transported in.

Attachment Points – An integral part of an item, tie down eye, fixture, or attachment for which serves as the primary means of connecting a lashing to the primary load item for restraint purposes during shipment. Attachment points are also referred to as 'tie down provisions', 'supplementary tie down provisions' or 'tie-down points' in foreign country standards. [General]

Design Limit Load (Limit Load) – The applied force, or maximum probable force, that a lifting or restraint point, including its connecting structural members, is to be able to withstand without permanent deformation occurring. The design limit load is to be used for proof load analysis. [General]

Design Proof Load – The maximum load that a structure is designed to withstand without deformation. It is the product of the design limit load and the proof factor. A proof factor is not typically applied in this standard and is therefore equal to 1.0. [General]

Design Ultimate Load (Ultimate Load, Ultimate Strength) – The force that a provision, including its connecting structural members, can sustain without breaking, rupturing, or otherwise becoming unusable. The DUL is used in the design/testing context. [General]

Superseded

Dual Point External Load – A single load Item which is simultaneously suspended from two aircraft cargo hooks. [EL]

Energy Dissipater – A device used for absorbing or dissipating the kinetic energy experienced by an air drop load during impact. [AD]

Energy Dissipating Material - As used in this standard, a crushable material (paper honeycomb) used to dissipate kinetic energy during impact. This material is to conform to MIL-H-9884. [AD]

External Lift Live Trial (External Lift Flight Test) – A flight trial in which a load item is rigged in its External Air Transport configuration and flown through specific aerial manoeuvres by ADF rotary wing aircraft in order to determine external air transport suitability. This test is used to verify stability during flight; as well as indicating the load item can withstand the dynamic forces induced by transportation by air. [EL]

External Lift Simulated Trial (Simulated Lift Test – External Lift) – A test where the rigged item is lifted by crane or hoist in order to verify the proposed rigging configuration and determine associated sling forces, as well as identify clearance problems. This is also referred to as a 'static lift test' by US MIL-STDs. [EL]

Extracted Weight – The total weight of the air drop item plus the weight of all items of air drop equipment required to rig and deliver the air dropped load including the parachute. [AD]

Extraction Provisions – An integral fitting on the load item used for attaching the extraction system for air drop applications. The preference is for the extraction provision on the Type V air drop platform to be used. This is defined as a platform extracted load. [AD]

Frame Members (Primary Structure) - Key structural components of a load item (e.g. main chassis beams, cross members) specifically designed to carry the main forces applied to the load item during its operation (such as weight, driving loads, operating loads, working loads). [General]

General Cargo – Cargo without special or hazardous properties that does not require extra precautions or special handling for air transport and does not exceed published aircraft limits. [AL]

Hazardous Materials – A substance or materiel which has been determined and designated by the IATA Dangerous Goods Regulations and/or the AAP 3631.002

Dangerous Goods – Transport by Service Air to be capable of posing an unreasonable risk to health, safety, and property when transported. Included are explosives, articles such as flammable liquids and solids and other dangerous oxidizing materials, corrosive materials, compressed gases, poisons and irritating materials, etiologic agents and radioactive materials. [General]

Lifting Provisions – An integral part of the load item, commonly called a padeye, lug, eye, ring, or attachment. A lifting provision provides a means of attaching a sling to the load item for safe lifting. [EL]

Load Item Designer – The party responsible for design of the military equipment (the load item) for delivery to the CoA.

Multi Point External Load – Two or more load items, suspended individually from separate aircraft cargo hooks. [EL]

Multipurpose Provision – A single provision that meets the requirements of this standard for both lifting and load item tie down. [General]

Superseded

Pallet – A simple unit load device used for consolidation of cargo for efficient handling. Within the RAAF, pallets fall into the following basic groups. [AL]

(a) **Warehouse Pallet:** Generally a wood pallet 40 inches x 48 inches x 6 inches, weighing 75 to 100 lb.

(b) **463L HCU-6E Pallet:** The pallet used within the military air cargo handling system and is also compatible with commercial air cargo systems. (104 in length x 84 in width x variable height. Height is determined by aircraft type)

(c) **463L HCU-12/E Pallet:** A pallet used within the military cargo handling system (88 in length x 54 in width x 76 in height).

Permanent Deformation – Any visible permanent irreversible change in the original dimensions or shape of the provision or connecting structure resulting from an applied force. [General]

Rigged Configuration – The completed load as presented to the aircraft ready for air drop. [AD]

Secondary Cargo Tie down Provision – A padeye, ring, shackle, fixture, or attachment integral to the cargo areas of trucks and trailers, flatbed trailers, or flat-racks (used as a demountable truck or trailer bed for securing secondary cargo or accessories). This is referred to as 'cargo tie down provisions' or 'large cargo tie down provisions' in US MIL-STDs. [General]

Shoring – Material, typically timber, used as a loading or transport aid. Both plywood and dimension lumber are commonly used for shoring purposes. Shoring includes:

(a) **Approach Shoring (Step-Up Shoring):** Approach shoring is used to reduce the ramp angle that a vehicle must traverse during aircraft on/offloading. Reduction of the ramp angle becomes necessary to avoid interference problems where there are minimal underside, overhead, or overhang clearances. Approach shoring requires large amounts of lumber and is not a preferred alternative to designing to have adequate clearances. [AL]

(b) **Parking shoring:** Shoring that is required under the wheels or tracks of vehicular cargo to distribute loads for inflight conditions. [AL]

(c) **Roller Shoring:** Shoring that is required to protect the aircraft ramps and cargo compartment floor from damage during on/ offloading and flight of tracked vehicles or vehicles with wheels that have lugs, cleats studs, metal rolling surfaces or small diameters. [AL]

(d) **Sleeper Shoring:** Sleeper shoring is used to prevent the movement of a vehicle due to gust and flight manoeuvre load conditions where tyres or the suspension system cannot withstand these loads without failure or depression producing slack in lashings. This type of shoring is placed between the aircraft floor and a structural part of the vehicle such as the frame. [AL]

Single Point External Load – A single load item which is suspended from one aircraft cargo hook. [EL]

Suspended Item – The rigged item suspended without the recovery parachute system attached. [AD]

Suspended Weight – The extracted weight less the weight of the parachute system. [AD]

Suspension Provision – An integral fitting on the load item or the air drop platform used to attach the suspension system and the retardation parachute system. The suspension system may also include the parachute release. [AD]

Superseded

Tandem Load – A load consisting of two separate load items, which are connected or prepared together in tandem. An example of a tandem load is a vehicle and trailer combination. Tandem loads are typically prepared and transported via a Dual Point Sling Load method. [EL]

Tie down Devices and Lashings – Chain or strap with integral attaching hardware used to restrain load items by means of connection between the load item attachment point and the platform or aircraft floor Tie down fitting. [AL, AD]

Tie down Fitting (Floor Ring) – Ring type cargo restraint fittings which are part of the aircraft floor. [AL]

Treadways – This is strengthened area of the cargo compartment floor especially designed to support vehicle traffic in C130/C-27 and CH-47 aircraft. [AL]

Ultimate Load Factor – A factor applied to the DLL to obtain the DUL. The ultimate load factor is equal to 1.5. [General]

Working Limit Load (Safe Working Load, Working Load) – The maximum load that can be applied to a device in the operational context. This load is inclusive of the relevant safety, flight load, material or other design factors. This is the 'rating' provided to operational users of the load item. [General]

Yield Load – The force at which a provision, including its connecting structural members, exhibits permanent deformation after the force is removed. The yield load must be greater than the design limit load. [General]

Superseded

ROLE EQUIPMENT AND PORTABLE ELECTRONIC EQUIPMENT

Superseded

INTRODUCTION

6.1 Role equipment and Portable Electronic Equipment (PEE) are managed under DASR ORO.75 Use of Aircraft Role Equipment, and DASR ORO.65 Carriage and Use of Portable Electronic Equipment respectively. Role equipment is any equipment, apart from Aeronautical Life Support Equipment (ALSE), fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission. Portable Electronic Equipment (PEE) (also known as Portable Electronic Devices or PEDs) comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, role equipment or ALSE.

6.2 Role equipment and PEE may compromise aircraft safe flight, occupant safety or capability. Consequently, technical evaluation of the equipment to identify, evaluate and minimise potential hazards is warranted. A secondary, but nevertheless important, aspect of the technical evaluation is to confirm that the equipment can operate and perform its intended function without being adversely affected by the aircraft operating environment.

Scope

6.3 This chapter presents the Authority prescribed design requirements for role equipment. The chapter also presents guidance on the technical evaluation of role equipment and PEE to support operational commander decisions on approvals, where required. Finally, the chapter presents a number of capability design requirements for establishing whether the role equipment or PEE will function as intended when exposed to an aircraft operating environment.

ROLE EQUIPMENT AND PEE DESIGN REQUIREMENTS

6.4 Given the different hazard context associated with Certified and Specific Approval role equipment, and PEE, the following paragraphs present the Authority prescribed airworthiness design requirements for each of these types of equipment as separate, but interlinked, requirements suites.

ROLE EQUIPMENT

6.5 DASR GM ORO.75 identifies two discrete categories of role equipment, being: ‘Certified’ and ‘Specific Approval’. Each of these categories is subject to a different management framework for approving the equipment for use on Defence aircraft. The application of the design requirements in this chapter is aligned to these categories and approval approaches.

6.6 Where role equipment is categorised as Certified, the equipment is included within the aircraft's type design and is therefore subject to DASR 21 certification requirements. All Certified category role equipment must therefore satisfy the applicable airworthiness design requirements in the host aircraft's Type Certification basis (TCB).

6.7 **Design Requirement (Essential).** *Certified category role equipment must meet the applicable airworthiness design requirements prescribed in the host aircraft's TCB.*

6.8 Compliance with the design requirements in a host aircraft's TCB demonstrates that the equipment can be safely operated in the aircraft. Where Certified category role equipment includes design characteristics that are not included in the host aircraft's TCB, the TCB must be supplemented with applicable design requirements. The design requirements for Specific Approval role equipment in this chapter provide guidance in establishing these additional requirements. This includes the conduct of a system safety analysis to identify and manage any novel hazards introduced by the role equipment.

Specific Approval category role equipment design requirements

6.9 Role equipment that is categorised as Specific Approval is not included in the aircraft's type design; rather the relevant operational commander approves its use (DASR ORO.75 refers). Specific Approval role equipment is usually associated with equipment that is introduced as a result of a capability imperative, where the pursuit of 'certification' would either adversely impact the capability outcome or is not warranted given the impact of the role equipment on aircraft and occupant safety. Nevertheless, Specific Approval category role equipment may pose hazards to aircraft safe flight, occupants or capability. Consequently, to support the operational commander in making an informed decision on role equipment approval, a technical evaluation of the associated hazards and potential risk controls is required by DASR ORO.75. This technical evaluation should include the following:

(a) potential hazards that the role equipment may pose to either the aircraft or occupants

(b) potential design/engineering controls that could be implemented to treat identified hazards

(c) requirements for the operation, installation, maintenance and support of the role equipment

(d) potential capability impacts resulting from role equipment use during aircraft operations.

6.10 While role equipment may initially be categorised as Specific Approval, to support an operational imperative, role equipment should be considered for certification where reasonably practicable. In particular, where the equipment is proposed for long-term use or use on multiple aircraft types, certification will ensure that all hazards are identified and analysed using a robust technical assessment framework to eliminate or otherwise minimise associated risks.

6.11 Unlike most other design requirements in the DASDRM, the following role equipment design requirements are not prescribed by the Authority since Specific Approval role equipment is not subject to certification processes. However, the requirements in this section provide a sound basis for undertaking Specific Approval role equipment technical evaluations, and should be considered when developing the 'technical advice' required by ORO.75. Further guidance on the application of the following design requirements is presented in Annex A.

Superseded

6.12 **Design Requirement.** *Role equipment should be subjected to a system safety analysis conducted in accordance with the requirements of Section 2 Chapter 2.*

6.13 While role equipment design requirements prescribed in this Chapter provide a basis for establishing that the equipment can be safely operated in a host aircraft, role equipment may introduce other hazards that are not identified through compliance with these requirements. Consequently, prior to role equipment approval for use on the host aircraft, a system safety analysis should be conducted to identify hazards and inform decisions on risk treatment.

6.14 **Design Requirement.** *Where role equipment exposure to aircraft operating environments may result in failure modes that pose a hazard to the host aircraft, the role equipment should satisfy the relevant equipment environmental qualification standards prescribed in the aircraft certification basis.*

6.15 Aircraft can present a harsh environment for role equipment, and inadequately designed equipment may present a hazard to the host aircraft. For example, explosive or rapid aircraft decompression may lead to the role equipment exploding if there is no pressure relief for sealed components, while aircraft vibration may cause internal short-circuits that generate sparks or fumes. Consequently, the role equipment should be verified to withstand the environmental conditions defined in the host aircraft's certification basis without posing a hazard to the host aircraft. Where the host aircraft certification basis for environmental qualification is uncertain, the requirements in Section 2 Chapter 9, Equipment Environmental Qualification, provide an initial benchmark for role equipment evaluation.

6.16 **Design Requirement.** *Role equipment should satisfy the relevant airworthiness design requirements for electromagnetic compatibility as prescribed in the aircraft certification basis.*

6.17 Aircraft electrical and electronic systems are designed to satisfy the electromagnetic compatibility requirements prescribed in the aircraft's certification basis. However, role equipment may not be designed to standards that provide a similar level of electromagnetic compatibility with the sometimes sensitive equipment found on aircraft. Consequently, role equipment should be evaluated prior to approval for use, to determine whether the equipment generates conducted or radiated emissions that could result in interference with aircraft systems. Where the host aircraft certification basis for E3 is uncertain, the requirements in Section 2 Chapter 4 provide an initial benchmark for role equipment evaluation.

6.18 **Design Requirement.** *Role equipment should satisfy the relevant airworthiness design requirements for electrical systems as prescribed in the aircraft certification basis.*

6.19 Aircraft electrical and electronic systems are designed to satisfy the electrical system requirements prescribed in the aircraft's certification basis. To ensure role equipment does not pose a hazard to the host aircraft, it should meet similar electrical system design requirements. This includes circuit protection, wire insulation type, battery protection, electrical loading and so on. Where the host aircraft certification basis for electrical systems is uncertain, the requirements in Section 3 Chapter 8 provide an initial benchmark for role equipment evaluation.

6.20 **Design Requirement.** *Role equipment should satisfy the relevant Authority prescribed airworthiness design requirements for oxygen systems detailed in Section 3 Chapter 6 of the DASDRM.*

6.21 Inadequately designed oxygen systems in role equipment may present a fire hazard. Role equipment designs and support systems should be evaluated to confirm that common risk reduction measures, such as filters on oxygen replenishing valves, skilled oxygen system maintainers, periodic servicing and so on are incorporated into the design and associated maintenance practices. Designs compliant with contemporary standards may be more forgiving of shortfalls in these risk reduction

Superseded

measures, due to a 'systems' approach to design that includes fire-resistant materials, filters, pressure reduction and so on.

6.22 **Design Requirement.** *Role equipment should be mounted within the host aircraft so that it will be restrained and retain its physical integrity when subjected to the maximum forces prescribed in the aircraft certification basis for a crash or hard landing.*

6.23 Role equipment may compromise the crash protection features of the host aircraft where it is not designed to, or is not mounted using devices that can, withstand the forces experienced during a crash or hard landing. Consequently, proposed role equipment and installation techniques should be evaluated prior to approval for use, to ensure that the equipment design can be appropriately restrained and can withstand applicable crash or hard landing forces.

6.24 **Design Requirement.** *Role equipment should not pose a personnel hazard, either in flight or during emergency egress.*

6.25 Role equipment designs may introduce physical hazards to on-board personnel that are not present in the 'normal' operational environment of the equipment. For example sharp edges may result in injury when personnel are required to move around the equipment in the confined space of an aircraft cabin, or the equipment may become a snag hazard during aircraft evacuation. Consequently, role equipment should be evaluated prior to approval for use, to ensure that hazards are identified and risks appropriately treated.

6.26 **Continuing airworthiness requirement.** *Where relevant, the responsible CAMO should establish a system for monitoring and managing changes in role equipment configuration, to confirm they continue to be compatible with the host aircraft.*

6.27 **Continuing airworthiness requirement.** *Where degradation of the role equipment may pose a hazard to the host aircraft, CAMOs should establish a maintenance management program for the equipment.*

6.28 While safe operation of role equipment on Defence aircraft will initially be established through the technical evaluation in support of role equipment approval, inadequate maintenance practices or changes in equipment configuration may compromise the level of safety established during this initial evaluation.

PORTABLE ELECTRONIC EQUIPMENT

6.29 Portable Electronic Equipment (PEE) is ubiquitous in modern society and is increasingly being used to support operational capability in Defence. Unlike other types of role equipment, the nature of PEE is such that it (normally) has limited potential for impact on aviation safety. For many common types of PEE, a risk assessment may determine that operational controls are sufficient to minimise the risks associated with PEE use without the need for a robust technical assessment. However, Defence may seek to use PEE that inherently poses unique hazards, such as intentional emitters, or in aircraft that have design features that pose unique hazards for PEE use, such as exposed sensitive equipment and wiring. Under these circumstances, additional technical evaluation of the PEE is warranted, to identify potential hazards and minimise associated risks. This section presents guidance to engineers on the PEE considerations that should be taken into account when providing technical advice to support PEE approvals.

6.30 All PEE approvals should be supported by a technical assessment. The level and scope of assessment required is relative to the impact of the PEE on safe flight and occupant safety, ie the

Superseded

potential hazards that PEE use introduces. Thus, the identification and characterisation of hazards to inform risk management decisions including the implementation of operational controls, is the focus of the technical assessment. To assist engineers to define the scope and level of assessment required, the following potential impacts on safe flight and occupant safety should be considered:

(a) **Safe flight:** Potential EMI/EMC associated with broadband unintentional emissions, or with intentional emissions where the PEE is required to be used as a functional transmitter during flight. Frequency and power of the emissions and the potential for the PEE to be used in close proximity to sensitive electrical/electronic safety of flight systems should be considered. The technical assessment should also consider the effect of limiting use to 'flight mode' or establishing 'safe zones' within the aircraft for transmitting PEE on the hazard.

(b) **Occupant safety:** Possible battery overheat/fire issues (for Li-ion batteries). Electrical overheat or battery fires may generate smoke and fumes and/or lead to cabin fires. Additional hazards associated with the presence of flammable materials (or materials that do not meet common practice aviation flammability requirements) may be present in military aircraft. The impact of such materials on occupant safety, eg the presence of additional/hazardous smoke/ fumes, should be evaluated. Some PEE, for example laptop computers, may require suitable restraint during take-off and landing to avoid the PEE compromising occupant safety during a crash or hard landing.

6.31 Some PEE may have previously been subject to evaluation by operators of civil and military aircraft and approved for use under the applicable operational regulations. For this PEE, such prior approvals may be used to support similar approvals on Defence aircraft, and can limit the technical assessment required, provided that the Defence aircraft CRE is substantially similar to that of the aircraft on which the PEE was previously approved. The following paragraphs present additional guidance material to assist engineers in developing advice to operational commanders to support PEE approvals.

PEE Evaluation

6.32 Major civil NAAs (EASA, FAA and CASA) have issued guidance to civil operators on the approval of PEE for use on aircraft. The following FAA, CASA and EASA documents provide detailed guidance for evaluating PEE for use on aircraft (including intentional emitter PEE) and provide a suitable benchmark for undertaking similar assessments for Defence aircraft:

(a) FAA AC 91.21-1D Use of Portable Electronic Devices Aboard Aircraft, or

(b) CASA Airworthiness Bulletin 23-003 Issue 2 Aid to Operators for the Expanded Use of Passenger PEDs, or

(c) EASA Part-CAT AMC/GM – to CAT.GEN.MPA.140 Portable Electronic Devices.

6.33 PEE 'safe zones'. In addition to the preceding generic PEE evaluation considerations, PEE may incorporate intentional emitters whose emissions may exceed the certified thresholds for aircraft systems interference. However, this PEE may still be operable in Defence aircraft provided that it is located in a region where the emissions do not interfere with safety of flight systems. These regions are known as PEE safe zones. For military aircraft, sensitive system components and wiring may be more accessible to occupants and, therefore, the potential for intentional emitters to adversely affect these systems may be greater than in similar civil aircraft. To permit the operation of this PEE, where relevant, establishing a PEE safe zone may be useful in controlling this potential hazard.

Superseded

6.34 The establishment of a PEE safe zone permits operation of PEE, with only a limited evaluation to confirm that the emissions of the equipment do not exceed the maximum levels associated with the zone. Establishing this zone could reduce the effort required to approve individual PEE for use. Additional guidance on the methodology for establishing PEE safe zones is presented in Annex B.

CAPABILITY DESIGN REQUIREMENTS

6.35 Role equipment and PEE used on Defence aircraft may perform an important capability function. Therefore, the ability of the role equipment or PEE to adequately perform its function while in an aircraft environment should be established before the equipment is approved for use. Role equipment and PEE may also adversely impact mission systems and equipment on the aircraft, causing loss or degradation of capability. Consequently, the Authority has identified capability design requirements to support the identification of capability impacts on the role equipment/PEE and the aircraft.

Impact on role equipment/PEE capability

6.36 Issues associated with electromagnetic compatibility, electrical compatibility, environmental qualification, physical compatibility and useability may all impact the effectiveness of role equipment/PEE when used in a Defence aircraft. The following capability design requirements are not prescribed by the Authority, but should be considered when establishing the suitability of role equipment/PEE for use on Defence aircraft.

6.37 **Capability design requirement.** *Where failure of role equipment or PEE, due to exposure to aircraft environmental conditions, will affect Defence capability, the equipment should be evaluated against the environmental design requirements applicable to the host aircraft.*

6.38 **Capability design requirement**. *Where failure of role equipment or PEE, due to exposure to the aircraft's electromagnetic environment, will affect Defence capability, the equipment should be evaluated against the electromagnetic susceptibility requirements applicable to the host aircraft.*

6.39 Role equipment and PEE may not be designed to withstand the often hostile environmental conditions experienced in the host aircraft. Given that some role equipment/PEE is essential to achieve required capability outcomes (eg aeromedical evacuation equipment, which performs a critical role in patient treatment and survival in an aircraft), ensuring that the equipment can continue to function correctly in an aircraft environment is necessary. Consequently, role equipment/PEE design and proposed installation should be evaluated to ensure that equipment functions will not be adversely affected when subjected to the physical (vibration, temperature, dust/moisture laden environments, noise and so on) and electromagnetic environmental conditions experienced by the host aircraft.

6.40 **Capability design requirement.** *Where role equipment or PEE are to be connected to the aircraft's electrical system, the electrical interface should be evaluated to confirm compatibility with the role equipment or PEE.*

6.41 Physical and functional compatibility with the aircraft's electrical power system should be verified for role equipment and PEE that will require aircraft power to operate correctly. This may require modification of the equipment if aircraft power characteristics (eg voltage and frequency stability, filtering and so on) are inadequate.

6.42 **Capability design requirement.** *For first of type role equipment or PEE, the operator interface should be verified as compatible with the airborne environment.*

Superseded

6.43 The airborne environment presents challenges for the role equipment operator that are not present in a ground environment. Issues such as aircraft movement during turbulence, inadequate lighting, cramped conditions, aircrew gloves and so on, may induce operator error unless human factors considerations are incorporated into the design process.

6.44 **Capability design requirement.** *Role equipment and PEE should be located and fitted to support operation in the host aircraft.*

6.45 Role equipment operators should be consulted to verify that the proposed location and fitment of the equipment in the host aircraft does not unacceptably degrade the operator's ability to use the equipment.

Impact on host aircraft capability

6.46 **Capability design requirement.** *Role equipment should be evaluated to confirm that it does not adversely impact the operation of aircraft mission systems and equipment.*

6.47 Role equipment should be verified to not adversely impact the operation of mission systems and equipment, predominantly through EMI/EMC. Depending on the proposed location of the role equipment or PEE, and whether it is intended to be non-transmitting or transmitting during use, EMI/EMC impacts on sensitive mission systems may occur. The technical evaluation should confirm whether the role equipment/PEE has the potential to degrade mission system functions and provide advice on potential limitations on use that could eliminate or minimise the associated capability impact.

ROLE EQUIPMENT AND PEE DESIGN REQUIREMENTS GUIDANCE

6.48 Further guidance on implementing design requirements for role equipment and PEE can be provided by the chapter sponsor.

Annexes:

A. Guidance for Role Equipment Design Requirements

B. Guidance on Establishing PEE Safe Zones

Superseded

INTRODUCTION

ROLE EQUIPMENT AND PORTABLE ELECTRONIC EQUIPMENT

INTRODUCTION

6.1 Role equipment and Portable Electronic Equipment (PEE) are managed under DASR ORO.75 Use of Aircraft Role Equipment, and DASR ORO.65 Carriage and Use of Portable Electronic Equipment respectively. Role equipment is any equipment, apart from Aeronautical Life Support Equipment (ALSE), fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission. Portable Electronic Equipment (PEE) (also known as Portable Electronic Devices or PEDs) comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, role equipment or ALSE.

6.2 Role equipment and PEE may compromise aircraft safe flight, occupant safety or capability. Consequently, technical evaluation of the equipment to identify, evaluate and minimise potential hazards is warranted. A secondary, but nevertheless important, aspect of the technical evaluation is to confirm that the equipment can operate and perform its intended function without being adversely affected by the aircraft operating environment.

Scope

6.3 This chapter presents the Authority prescribed design requirements for role equipment. The chapter also presents guidance on the technical evaluation of role equipment and PEE to support operational commander decisions on approvals, where required. Finally, the chapter presents a number of capability design requirements for establishing whether the role equipment or PEE will function as intended when exposed to an aircraft operating environment.

ROLE EQUIPMENT AND PEE DESIGN REQUIREMENTS

6.4 Given the different hazard context associated with Certified and Specific Approval role equipment, and PEE, the following paragraphs present the Authority prescribed airworthiness design requirements for each of these types of equipment as separate, but interlinked, requirements suites.

ROLE EQUIPMENT

6.5 DASR GM ORO.75 identifies two discrete categories of role equipment, being: ‘Certified’ and ‘Specific Approval’. Each of these categories is subject to a different management framework for approving the equipment for use on Defence aircraft. The application of the design requirements in this chapter is aligned to these categories and approval approaches.

Certified category role equipment design requirements

6.6 Where role equipment is categorised as Certified, the equipment is included within the aircraft’s type design and is therefore subject to DASR 21 certification requirements. All Certified category role equipment must therefore satisfy the applicable airworthiness design requirements in the host aircraft’s Type Certification basis (TCB).

Superseded

6.7 **Design Requirement (Essential).** *Certified category role equipment must meet the applicable airworthiness design requirements prescribed in the host aircraft's TCB.*

6.8 Compliance with the design requirements in a host aircraft's TCB demonstrates that the equipment can be safely operated in the aircraft. Where Certified category role equipment includes design characteristics that are not included in the host aircraft's TCB, the TCB must be supplemented with applicable design requirements. The design requirements for Specific Approval role equipment in this chapter provide guidance in establishing these additional requirements. This includes the conduct of a system safety analysis to identify and manage any novel hazards introduced by the role equipment.

Specific Approval category role equipment design requirements

6.9 Role equipment that is categorised as Specific Approval is not included in the aircraft's type design; rather the relevant operational commander approves its use (DASR ORO.75 refers). Specific Approval role equipment is usually associated with equipment that is introduced as a result of a capability imperative, where the pursuit of 'certification' would either adversely impact the capability outcome or is not warranted given the impact of the role equipment on aircraft and occupant safety. Nevertheless, Specific Approval category role equipment may pose hazards to aircraft safe flight, occupants or capability. Consequently, to support the operational commander in making an informed decision on role equipment approval, a technical evaluation of the associated hazards and potential risk controls is required by DASR ORO.75. This technical evaluation should include the following:

(a) potential hazards that the role equipment may pose to either the aircraft or occupants

(b) potential design/engineering controls that could be implemented to treat identified hazards

(c) requirements for the operation, installation, maintenance and support of the role equipment

(d) potential capability impacts resulting from role equipment use during aircraft operations.

6.10 While role equipment may initially be categorised as Specific Approval, to support an operational imperative, role equipment should be considered for certification where reasonably practicable. In particular, where the equipment is proposed for long-term use or use on multiple aircraft types, certification will ensure that all hazards are identified and analysed using a robust technical assessment framework to eliminate or otherwise minimise associated risks.

6.11 Unlike most other design requirements in the DASDRM, the following role equipment design requirements are not prescribed by the Authority since Specific Approval role equipment is not subject to certification processes. However, the requirements in this section provide a sound basis for undertaking Specific Approval role equipment technical evaluations, and should be considered when developing the 'technical advice' required by ORO.75. Further guidance on the application of the following design requirements is presented in Annex A.

6.12 **Design Requirement.** *Role equipment should be subjected to a system safety analysis conducted in accordance with the requirements of Section 2 Chapter 2.*

6.13 While role equipment design requirements prescribed in this Chapter provide a basis for establishing that the equipment can be safely operated in a host aircraft, role equipment may introduce other hazards that are not identified through compliance with these requirements. Consequently, prior to role equipment approval for use on the host aircraft, a system safety analysis should be conducted to identify hazards and inform decisions on risk treatment.

Superseded

6.14 **Design Requirement.** *Where role equipment exposure to aircraft operating environments may result in failure modes that pose a hazard to the host aircraft, the role equipment should satisfy the relevant equipment environmental qualification standards prescribed in the aircraft certification basis.*

6.15 Aircraft can present a harsh environment for role equipment, and inadequately designed equipment may present a hazard to the host aircraft. For example, explosive or rapid aircraft decompression may lead to the role equipment exploding if there is no pressure relief for sealed components, while aircraft vibration may cause internal short-circuits that generate sparks or fumes. Consequently, the role equipment should be verified to withstand the environmental conditions defined in the host aircraft's certification basis without posing a hazard to the host aircraft. Where the host aircraft certification basis for environmental qualification is uncertain, the requirements in Section 2 Chapter 9, Equipment Environmental Qualification, provide an initial benchmark for role equipment evaluation.

6.16 **Design Requirement.** *Role equipment should satisfy the relevant airworthiness design requirements for electromagnetic compatibility as prescribed in the aircraft certification basis.*

6.17 Aircraft electrical and electronic systems are designed to satisfy the electromagnetic compatibility requirements prescribed in the aircraft's certification basis. However, role equipment may not be designed to standards that provide a similar level of electromagnetic compatibility with the sometimes sensitive equipment found on aircraft. Consequently, role equipment should be evaluated prior to approval for use, to determine whether the equipment generates conducted or radiated emissions that could result in interference with aircraft systems. Where the host aircraft certification basis for E3 is uncertain, the requirements in Section 2 Chapter 4 provide an initial benchmark for role equipment evaluation.

6.18 **Design Requirement.** *Role equipment should satisfy the relevant airworthiness design requirements for electrical systems as prescribed in the aircraft certification basis.*

6.19 Aircraft electrical and electronic systems are designed to satisfy the electrical system requirements prescribed in the aircraft's certification basis. To ensure role equipment does not pose a hazard to the host aircraft, it should meet similar electrical system design requirements. This includes circuit protection, wire insulation type, battery protection, electrical loading and so on. Where the host aircraft certification basis for electrical systems is uncertain, the requirements in Section 3 Chapter 8 provide an initial benchmark for role equipment evaluation.

6.20 **Design Requirement.** *Role equipment should satisfy the relevant Authority prescribed airworthiness design requirements for oxygen systems detailed in Section 3 Chapter 6 of the DASDRM.*

6.21 Inadequately designed oxygen systems in role equipment may present a fire hazard. Role equipment designs and support systems should be evaluated to confirm that common risk reduction measures, such as filters on oxygen replenishing valves, skilled oxygen system maintainers, periodic servicing and so on are incorporated into the design and associated maintenance practices. Designs compliant with contemporary standards may be more forgiving of shortfalls in these risk reduction measures, due to a 'systems' approach to design that includes fire-resistant materials, filters, pressure reduction and so on.

6.22 **Design Requirement.** *Role equipment should be mounted within the host aircraft so that it will be restrained and retain its physical integrity when subjected to the maximum forces prescribed in the aircraft certification basis for a crash or hard landing.*

6.23 Role equipment may compromise the crash protection features of the host aircraft where it is not designed to, or is not mounted using devices that can, withstand the forces experienced during a

Superseded

crash or hard landing. Consequently, proposed role equipment and installation techniques should be evaluated prior to approval for use, to ensure that the equipment design can be appropriately restrained and can withstand applicable crash or hard landing forces.

6.24 **Design Requirement.** *Role equipment should not pose a personnel hazard, either in flight or during emergency egress.*

6.25 Role equipment designs may introduce physical hazards to on-board personnel that are not present in the 'normal' operational environment of the equipment. For example sharp edges may result in injury when personnel are required to move around the equipment in the confined space of an aircraft cabin, or the equipment may become a snag hazard during aircraft evacuation. Consequently, role equipment should be evaluated prior to approval for use, to ensure that hazards are identified and risks appropriately treated.

6.26 **Continuing airworthiness requirement.** *Where relevant, the responsible CAMO should establish a system for monitoring and managing changes in role equipment configuration, to confirm they continue to be compatible with the host aircraft.*

6.27 **Continuing airworthiness requirement.** *Where degradation of the role equipment may pose a hazard to the host aircraft, CAMOs should establish a maintenance management program for the equipment.*

6.28 While safe operation of role equipment on Defence aircraft will initially be established through the technical evaluation in support of role equipment approval, inadequate maintenance practices or changes in equipment configuration may compromise the level of safety established during this initial evaluation.

PORTABLE ELECTRONIC EQUIPMENT

6.29 Portable Electronic Equipment (PEE) is ubiquitous in modern society and is increasingly being used to support operational capability in Defence. Unlike other types of role equipment, the nature of PEE is such that it (normally) has limited potential for impact on aviation safety. For many common types of PEE, a risk assessment may determine that operational controls are sufficient to minimise the risks associated with PEE use without the need for a robust technical assessment. However, Defence may seek to use PEE that inherently poses unique hazards, such as intentional emitters, or in aircraft that have design features that pose unique hazards for PEE use, such as exposed sensitive equipment and wiring. Under these circumstances, additional technical evaluation of the PEE is warranted, to identify potential hazards and minimise associated risks. This section presents guidance to engineers on the PEE considerations that should be taken into account when providing technical advice to support PEE approvals.

6.30 All PEE approvals should be supported by a technical assessment. The level and scope of assessment required is relative to the impact of the PEE on safe flight and occupant safety, ie the potential hazards that PEE use introduces. Thus, the identification and characterisation of hazards to inform risk management decisions including the implementation of operational controls, is the focus of the technical assessment. To assist engineers to define the scope and level of assessment required, the following potential impacts on safe flight and occupant safety should be considered:

(a) **Safe flight:** Potential EMI/EMC associated with broadband unintentional emissions, or with intentional emissions where the PEE is required to be used as a functional transmitter during flight. Frequency and power of the emissions and the potential for the PEE to be used in close proximity to sensitive electrical/electronic safety of flight systems should be considered. The

Superseded

technical assessment should also consider the effect of limiting use to 'flight mode' or establishing 'safe zones' within the aircraft for transmitting PEE on the hazard.

(b) **Occupant safety:** Possible battery overheat/fire issues (for Li-ion batteries). Electrical overheat or battery fires may generate smoke and fumes and/or lead to cabin fires. Additional hazards associated with the presence of flammable materials (or materials that do not meet common practice aviation flammability requirements) may be present in military aircraft. The impact of such materials on occupant safety, eg the presence of additional/hazardous smoke/fumes, should be evaluated. Some PEE, for example laptop computers, may require suitable restraint during take-off and landing to avoid the PEE compromising occupant safety during a crash or hard landing.

6.31 Some PEE may have previously been subject to evaluation by operators of civil and military aircraft and approved for use under the applicable operational regulations. For this PEE, such prior approvals may be used to support similar approvals on Defence aircraft, and can limit the technical assessment required, provided that the Defence aircraft CRE is substantially similar to that of the aircraft on which the PEE was previously approved. The following paragraphs present additional guidance material to assist engineers in developing advice to operational commanders to support PEE approvals.

PEE Evaluation

6.32 Major civil NAAs (EASA, FAA and CASA) have issued guidance to civil operators on the approval of PEE for use on aircraft. The following FAA, CASA and EASA documents provide detailed guidance for evaluating PEE for use on aircraft (including intentional emitter PEE) and provide a suitable benchmark for undertaking similar assessments for Defence aircraft:

(a) FAA AC 91.21-1D Use of Portable Electronic Devices Aboard Aircraft, or

(b) CASA Airworthiness Bulletin 23-003 Issue 2 Aid to Operators for the Expanded Use of Passenger PEDs, or

(c) EASA Part-CAT AMC/GM – to CAT.GEN.MPA.140 Portable Electronic Devices.

6.33 PEE 'safe zones'. In addition to the preceding generic PEE evaluation considerations, PEE may incorporate intentional emitters whose emissions may exceed the certified thresholds for aircraft systems interference. However, this PEE may still be operable in Defence aircraft provided that it is located in a region where the emissions do not interfere with safety of flight systems. These regions are known as PEE safe zones. For military aircraft, sensitive system components and wiring may be more accessible to occupants and, therefore, the potential for intentional emitters to adversely affect these systems may be greater than in similar civil aircraft. To permit the operation of this PEE, where relevant, establishing a PEE safe zone may be useful in controlling this potential hazard.

6.34 The establishment of a PEE safe zone permits operation of PEE, with only a limited evaluation to confirm that the emissions of the equipment do not exceed the maximum levels associated with the zone. Establishing this zone could reduce the effort required to approve individual PEE for use. Additional guidance on the methodology for establishing PEE safe zones is presented in Annex B.

CAPABILITY DESIGN REQUIREMENTS

6.35 Role equipment and PEE used on Defence aircraft may perform an important capability function. Therefore, the ability of the role equipment or PEE to adequately perform its function while in an aircraft environment should be established before the equipment is approved for use. Role equipment and PEE may also adversely impact mission systems and equipment on the aircraft,

Superseded

causing loss or degradation of capability. Consequently, the Authority has identified capability design requirements to support the identification of capability impacts on the role equipment/PEE and the aircraft.

Impact on role equipment/PEE capability

6.36 Issues associated with electromagnetic compatibility, electrical compatibility, environmental qualification, physical compatibility and useability may all impact the effectiveness of role equipment/PEE when used in a Defence aircraft. The following capability design requirements are not prescribed by the Authority, but should be considered when establishing the suitability of role equipment/PEE for use on Defence aircraft.

6.37 **Capability design requirement.** *Where failure of role equipment or PEE, due to exposure to aircraft environmental conditions, will affect Defence capability, the equipment should be evaluated against the environmental design requirements applicable to the host aircraft.*

6.38 **Capability design requirement**. *Where failure of role equipment or PEE, due to exposure to the aircraft's electromagnetic environment, will affect Defence capability, the equipment should be evaluated against the electromagnetic susceptibility requirements applicable to the host aircraft.*

6.39 Role equipment and PEE may not be designed to withstand the often hostile environmental conditions experienced in the host aircraft. Given that some role equipment/PEE is essential to achieve required capability outcomes (eg aeromedical evacuation equipment, which performs a critical role in patient treatment and survival in an aircraft), ensuring that the equipment can continue to function correctly in an aircraft environment is necessary. Consequently, role equipment/PEE design and proposed installation should be evaluated to ensure that equipment functions will not be adversely affected when subjected to the physical (vibration, temperature, dust/moisture laden environments, noise and so on) and electromagnetic environmental conditions experienced by the host aircraft.

6.40 **Capability design requirement.** *Where role equipment or PEE are to be connected to the aircraft's electrical system, the electrical interface should be evaluated to confirm compatibility with the role equipment or PEE.*

6.41 Physical and functional compatibility with the aircraft's electrical power system should be verified for role equipment and PEE that will require aircraft power to operate correctly. This may require modification of the equipment if aircraft power characteristics (eg voltage and frequency stability, filtering and so on) are inadequate.

6.42 **Capability design requirement.** *For first of type role equipment or PEE, the operator interface should be verified as compatible with the airborne environment.*

6.43 The airborne environment presents challenges for the role equipment operator that are not present in a ground environment. Issues such as aircraft movement during turbulence, inadequate lighting, cramped conditions, aircrew gloves and so on, may induce operator error unless human factors considerations are incorporated into the design process.

6.44 **Capability design requirement.** *Role equipment and PEE should be located and fitted to support operation in the host aircraft.*

6.45 Role equipment operators should be consulted to verify that the proposed location and fitment of the equipment in the host aircraft does not unacceptably degrade the operator's ability to use the equipment.

Superseded

Impact on host aircraft capability

6.46 **Capability design requirement.** *Role equipment should be evaluated to confirm that it does not adversely impact the operation of aircraft mission systems and equipment.*

6.47 Role equipment should be verified to not adversely impact the operation of mission systems and equipment, predominantly through EMI/EMC. Depending on the proposed location of the role equipment or PEE, and whether it is intended to be non-transmitting or transmitting during use, EMI/EMC impacts on sensitive mission systems may occur. The technical evaluation should confirm whether the role equipment/PEE has the potential to degrade mission system functions and provide advice on potential limitations on use that could eliminate or minimise the associated capability impact.

ROLE EQUIPMENT AND PEE DESIGN REQUIREMENTS GUIDANCE

6.48 Further guidance on implementing design requirements for role equipment and PEE can be provided by the chapter sponsor.

Annexes:

A. Guidance for Role Equipment Design Requirements

B. Guidance on Establishing PEE Safe Zones

Superseded

ROLE EQUIPMENT AND PEE DESIGN REQUIREMENTS GUIDANCE

GUIDANCE FOR ROLE EQUIPMENT DESIGN REQUIREMENTS

INTRODUCTION

(a) DASDRM Section 5 Chapter 6 presents the Authority prescribed design requirements for role equipment and Portable Electronic Equipment (PEE). This Annex provides guidance on design considerations for technical assessment of role equipment to support operational approvals.

ROLE EQUIPMENT DESIGN REQUIREMENTS - GUIDANCE

Role equipment System Safety Analyses

(b) Role equipment may present unique hazards when operated on aircraft that are not likely to have been considered by the original designer of the equipment, and the equipment is unlikely to have been previously evaluated to confirm that it is physically compatible with the host aircraft. For example, the equipment may contain chemicals or other substances that could become hazardous to personnel or the aircraft structure if exposed (such as corrosive substances). Aircraft can also present a harsh environment for role equipment, and inadequately designed equipment may present a hazard to the host aircraft. Further, domestic appliances such as heaters or cooking equipment could pose a fire safety or leakage hazard. While these hazards may be acceptable in a non-aircraft environment (since the operator is likely to be able to evacuate the area) a similar approach to treating the hazard would not be suitable for aircraft operations. The following paragraphs provide specific guidance for identification of potential hazards associated with environmental conditions present in Defence aircraft, the general approach that should be adopted for conducting role equipment SSAs, and evaluating the safety of domestic appliances.

(c) Conducting role equipment SSAs. For aircraft systems, hazards are normally identified by implementing a robust system safety program supported by, inter alia, SSAs. Robust system safety programs are unlikely to have been followed during design development of role equipment and, where a system safety approach was taken, the role equipment is unlikely to have been designed with comprehensive hazard identification and treatment in mind, particularly for the aviation environment. However, the system safety approach to role equipment should be applied in a pragmatic manner. It would be easy for aviation engineers to apply an excessive level of rigour, and expend associated resources, to role equipment and implement a comprehensive systems safety approach when this is not warranted. Consequently, the following suite of requirements, based on MIL-STD-882 'tasks', provide a suggested basis for conducting system safety assessments for role equipment:

1. Task 106 – Hazard Tracking System. The hazards identified during the role equipment SSA should be incorporated into the host aircraft's hazard tacking system (usually via the Hazard log).

2. Task 205 – System Hazard Analysis. Conduct a SHA to the extent necessary to identify hazards relevant to role equipment use in the airborne environment and evaluate whether the hazards have been (or can be) effectively treated.

Superseded

3. Task 206 – Operating and Support Hazard Analysis. Evaluate proposed role equipment operations while on-board the host aircraft to identify whether operations introduce additional hazards and propose suitable risk treatment. Evaluate the support arrangements for the role equipment to identify if configuration changes to the equipment that may introduce hazards are adequately controlled.

4. Task 207 – Health Hazard Analysis. Evaluate role equipment to identify any potential health impacts on aircraft occupants associated with role equipment materials.

5. Task 303 – Test and Evaluation Participation. Where required, establish the parameters to be tested/verified during operational test and evaluation to support engineering assessment of the proposed role equipment.

6. Task 401 – Safety Verification. Identify any additional testing required to verify the safe operation of role equipment when on-board the host aircraft (eg additional environmental qualification or E3 testing).

Environmental qualification

(d) Role equipment is often designed for an application other than aircraft use and is adapted to suit a Defence capability requirement. Consequently, the equipment is unlikely to have been previously evaluated to confirm that it can safely operate when subjected to the (sometimes) extreme environmental conditions experienced by the host aircraft. For example, the equipment may contain components that are hermetically sealed and may be prone to explosive rupture if subjected to an explosive or rapid decompression. Long-term exposure to vibration environments often present in the host aircraft may lead to internal failure of components that provide specific hazard treatment, such as bonding and circuit protection, and result in electrical fires or smoke and fumes. The worst-case environmental conditions that the role equipment may be subjected to in the host aircraft should be established and the equipment evaluated against these conditions to determine if it can be safely installed and operated, prior to approval for use.

Electromagnetic compatibility

(e) Defence aircraft electrical and electronic systems are designed to satisfy the electromagnetic compatibility requirements prescribed in the aircraft's certification basis. However, role equipment may not be designed to standards that provide a similar level of electromagnetic compatibility with the sometimes sensitive equipment found on aircraft. Consequently, the equipment is unlikely to have been certified as compliant with the E3 design requirements prescribed for the host aircraft systems and equipment. Therefore, an evaluation of the role equipment should be undertaken to verify that there will be no impact on safe aircraft operations as a result of electromagnetic interference. This evaluation may require analysis of extant EMI/EMC certification of the role equipment or additional testing if required, and the establishment of any additional limitations on role equipment operation (eg phases of flight that the equipment can be safely operated or location of the equipment during operation).

(f) The requirements detailed in DASDRM Section 2 Chapter 4, Electromagnetic Environmental Effects can be used as a template for determining those elements of electromagnetic compatibility that require evaluation. Where the host aircraft certification basis for electromagnetic environmental effects is uncertain, the requirements in Section 2 Chapter 4 provide an initial benchmark for role equipment evaluation. Further information on electromagnetic compatibility issues is provided within the PEE guidance section of this Annex.

Electrical system design

Superseded

(g) Role equipment is unlikely to have been certified as compliant with the electrical systems design requirements prescribed for Defence aircraft. Many items of role equipment are designed to commercial specifications and standards, which provide significant latitude for designers when establishing whether the system is safe. For example, the wiring used in role equipment often is insulated using the cheapest and most reliable materials for the commercial application (eg PVC insulation). Such insulation may not be suitable for aircraft use. Therefore, any non-compliance with Defence aircraft electrical system requirements should be identified and the impact on safe aircraft operations, if any, established together with any associated limitations on role equipment operation (eg additional circuit protection, limitations on connection to aircraft power supplies or permitted battery types).

(h) The requirements detailed in DASDRM Section 3 Chapter 8, Electrical Systems can be used as a template for determining those elements of electrical systems compatibility that require evaluation. The following paragraphs detail specific guidance for role equipment electrical systems compatibility issues.

(i) **Electrical Wiring.** Several types of electrical wiring, for example those with Polyvinyl Chloride (PVC) or Polyimide (Kapton) insulation, exhibit undesirable properties and are therefore either prohibited or restricted for use in Defence aircraft. A similar approach should be adopted for role equipment wiring. DASDRM Section 3 Chapter 8 Electrical Systems, details the Authority prescribed design requirements for aircraft wiring which should be applied to role equipment where reasonable and pragmatic. Wiring that connects role equipment to aircraft power outlets should be routed so that it does not interfere with normal aircraft operations or impede access to, or use of, the role equipment.

(j) **Bonding.** Where practicable, all metallic components of role equipment should be electrically bonded to each other and to the airframe to protect the equipment and the aircraft against the effects of static electricity and lightning.

(k) **Battery Powered Equipment.** Role equipment with installed batteries should be subjected to regular inspections to ensure the battery is physically sound and no leakage of electrolyte has occurred. If these inspections are not included in the equipment servicing schedules, a pre-flight inspection of batteries should be included in an aircraft special (S) servicing for fitment of the role equipment. Batteries should be assessed to confirm that they are compatible with the worst-case environment likely to be experienced when the equipment is installed in the host aircraft.

(l) **Electrical Power Connections.** Where role equipment is to be connected to an aircraft power supply (either directly or through some form of power conversion equipment) military specification electrical connectors should be used wherever possible. Where this is not practicable, a safety assessment of the connectors should be conducted and any identified hazards appropriately treated.

(m) **Main Electrical Power Switch.** Each item of electrically powered role equipment that will utilise aircraft power should be fitted with a single ON/OFF power switch in the appropriate power line. The switch should be guarded and there should be an indication that the power supply is switched on. Circuit breakers should not be used to fulfil this requirement unless they have been specifically designed for this purpose.

(n) **Overcurrent Protective Devices.** Each item of electrically powered role equipment that will utilise aircraft power should be fitted with an overcurrent protective device. The protective device should be fitted as close as practicable to the entry point of power to the equipment.

Role equipment incorporating oxygen systems

Superseded

(o) Role equipment that incorporates an oxygen system is unlikely to be designed to Defence aircraft design standards and may therefore pose an increased fire hazard. In particular, items of role equipment used for medical purposes (Aeromedical Evacuation Equipment (AMEE)) are often commercially available equipment that is designed for hospital or general medical use using commercial specifications and standards, which provide significant latitude for designers when establishing whether the system is safe. For example, the oxygen piping used in role equipment is often PTFE tubing or similar, which is not usually suitable for aircraft systems and may pose an increased risk of leakage, or ignition and consequent fire hazard. Role equipment containing oxygen also presents particular hazards in an aircraft environment that may not be relevant in the equipment's 'normal' use (eg confined spaces and oxygen enriched atmospheres in the presence of oils/lubricants used on aircraft components). Further, compatibility with the host aircraft oxygen system must be established (eg aircraft oxygen systems provide dry breathing oxygen while most medical systems require oxygen with a defined moisture content) where the aircraft system will provide the oxygen supply. Connections between the host aircraft and role equipment systems must also be secure and prevent the escape of oxygen.

(p) While adoption of the host aircraft's oxygen system design requirements may appear reasonable, aircraft oxygen systems are designed within a system safety framework that provides a robust approach to identification and treatment of hazards. For oxygen systems, this approach results in a comprehensive risk treatment program that includes: filtration (for replenishment support equipment and at the aircraft system filler valve), pressure reduction, selection of fire resistant materials, prescribed maintenance practices and inspections, and so on. Role equipment oxygen systems, on the other hand, are unlikely to have been designed under the same rigorous approach to hazard identification and treatment. Consequently, oxygen systems in role equipment should be designed to comply with the requirements in DASDRM Section 3 Chapter 6, to ensure that a 'systems' approach to design is followed that includes fire-resistant materials, filters, pressure reduction and so on.

(q) Any non-compliance with Defence aircraft oxygen system requirements should be identified and the impact on safe aircraft operations should be evaluated before approval for use is granted. Further, any additional limitations or caveats on role equipment operation (eg additional testing required, limitations on connection to aircraft oxygen supplies or requirements for physical restraint of oxygen bottles) to ensure that the equipment can be safely installed and operated should be established and promulgated in associated role equipment and/or aircraft operating procedures.

Role equipment mounting and restraint

(r) Role equipment is unlikely to have been previously evaluated to confirm that it is physically capable of withstanding the significant forces involved in a crash or hard landing in an aircraft. The crash protection features of the host aircraft may be compromised by role equipment that is not designed to, or is not mounted using devices that can, withstand these forces. Consequently, role equipment must be capable of being restrained in such a manner that it does not become a projectile, or break apart, in a crash or hard landing.

(s) Role equipment should be evaluated prior to approval for use, to ensure that the equipment design can be appropriately restrained and can withstand crash or hard landing forces in the host aircraft. Any additional limitations on role equipment fitment or operation (eg location of the equipment during operation and/or physical restraint methods) to ensure that the equipment remains safe when installed in the aircraft should also be established and promulgated in relevant equipment and/or aircraft procedures. The following paragraphs provide specific guidance for role equipment mounting.

Superseded

(t) **Fastener Hardware.** Fasteners should be suitable for the intended application and retain items securely without loss of joint integrity or separation of fastener parts when the equipment is subjected to the maximum expected vibration or to the likely loads experienced during a hard or crash landing. Screwed fasteners should be either of the self-locking variety or should be lock-wired to ensure security during operation.

(u) **Mounting and Securing.** Suitable restraint devices should be provided which are capable of securing the role equipment against the maximum load forces expected (advice should be sought from Air Movements Training and Development Unit (AMTDU) where required). For non-standard and trial modifications where role equipment is permanently attached to the aircraft rather than restrained in a manner similar to cargo, the restraint of equipment should be designed in accordance with the Aircraft Structural Integrity Management Plan (ASIMP). Floor loading of the item should not exceed values for each aircraft type as detailed by AMTDU. Removable attachments, when not in use, should be securely stowed on the equipment.

Personnel hazards

(v) Role equipment designs may introduce physical hazards to personnel when installed in Defence aircraft that are not present in the 'normal' operational environment of the equipment. Further, the equipment is unlikely to have been previously evaluated to confirm that it does not pose a hazard to personnel during flight or emergency evacuation. Physical design issues such as sharp edges or protruding components of the role equipment may also result in hazards that are not considered important for the equipment's 'normal' use, but may be substantial hazards in an aircraft environment, resulting in injury or entanglement in turbulence or evacuations. Equipment should be mounted in the host aircraft in a location that will not impede normal and emergency ingress/egress. Additionally, the equipment should not impede access to aircraft emergency equipment and systems such as manual landing gear extension areas.

Continuing airworthiness

(w) While safe operation of role equipment on Defence aircraft will initially be established through the evaluation in support of approval to operate the role equipment, inadequate maintenance practices or changes in role equipment configuration may compromise the level of safety established during this initial evaluation. Many items of role equipment are not aviation materiel and are therefore not managed by aircraft support agencies. In the past, role equipment issues as a result of failure to adopt appropriate maintenance practices or the incorporation of changes to the role equipment configuration (either approved by the managing CASG support organisation or under a 'field approval') have compromised role equipment safety. To avoid these issues, suitable maintenance programs and/or arrangements with the role equipment or PEE managing CASG support organisation should be established to ensure that any such changes are communicated and can be evaluated for impacts on the extant approval for use.

Superseded

ANNEXES

ANNEX A - GUIDANCE FOR ROLE EQUIPMENT DESIGN REQUIREMENTS

GUIDANCE FOR ROLE EQUIPMENT DESIGN REQUIREMENTS

INTRODUCTION

(a) DASDRM Section 5 Chapter 6 presents the Authority prescribed design requirements for role equipment and Portable Electronic Equipment (PEE). This Annex provides guidance on design considerations for technical assessment of role equipment to support operational approvals.

ROLE EQUIPMENT DESIGN REQUIREMENTS - GUIDANCE Role equipment System Safety Analyses

(b) Role equipment may present unique hazards when operated on aircraft that are not likely to have been considered by the original designer of the equipment, and the equipment is unlikely to have been previously evaluated to confirm that it is physically compatible with the host aircraft. For example, the equipment may contain chemicals or other substances that could become hazardous to personnel or the aircraft structure if exposed (such as corrosive substances). Aircraft can also present a harsh environment for role equipment, and inadequately designed equipment may present a hazard to the host aircraft. Further, domestic appliances such as heaters or cooking equipment could pose a fire safety or leakage hazard. While these hazards may be acceptable in a non-aircraft environment (since the operator is likely to be able to evacuate the area) a similar approach to treating the hazard would not be suitable for aircraft operations. The following paragraphs provide specific guidance for identification of potential hazards associated with environmental conditions present in Defence aircraft, the general approach that should be adopted for conducting role equipment SSAs, and evaluating the safety of domestic appliances.

(c) Conducting role equipment SSAs. For aircraft systems, hazards are normally identified by implementing a robust system safety program supported by, inter alia, SSAs. Robust system safety programs are unlikely to have been followed during design development of role equipment and, where a system safety approach was taken, the role equipment is unlikely to have been designed with comprehensive hazard identification and treatment in mind, particularly for the aviation environment. However, the system safety approach to role equipment should be applied in a pragmatic manner. It would be easy for aviation engineers to apply an excessive level of rigour, and expend associated resources, to role equipment and implement a comprehensive systems safety approach when this is not warranted. Consequently, the following suite of requirements, based on MIL-STD-882 ‘tasks’, provide a suggested basis for conducting system safety assessments for role equipment:

1. Task 106 – Hazard Tracking System. The hazards identified during the role equipment SSA should be incorporated into the host aircraft’s hazard tacking system (usually via the Hazard log).

2. Task 205 – System Hazard Analysis. Conduct a SHA to the extent necessary to identify hazards relevant to role equipment use in the airborne environment and evaluate whether the hazards have been (or can be) effectively treated.

3. Task 206 – Operating and Support Hazard Analysis. Evaluate proposed role equipment operations while on-board the host aircraft to identify whether operations introduce additional hazards and propose suitable risk treatment. Evaluate the support

Superseded

arrangements for the role equipment to identify if configuration changes to the equipment that may introduce hazards are adequately controlled.

4. Task 207 – Health Hazard Analysis. Evaluate role equipment to identify any potential health impacts on aircraft occupants associated with role equipment materials.

5. Task 303 – Test and Evaluation Participation. Where required, establish the parameters to be tested/verified during operational test and evaluation to support engineering assessment of the proposed role equipment.

6. Task 401 – Safety Verification. Identify any additional testing required to verify the safe operation of role equipment when on-board the host aircraft (eg additional environmental qualification or E3 testing).

Environmental qualification

(d) Role equipment is often designed for an application other than aircraft use and is adapted to suit a Defence capability requirement. Consequently, the equipment is unlikely to have been previously evaluated to confirm that it can safely operate when subjected to the (sometimes) extreme environmental conditions experienced by the host aircraft. For example, the equipment may contain components that are hermetically sealed and may be prone to explosive rupture if subjected to an explosive or rapid decompression. Long-term exposure to vibration environments often present in the host aircraft may lead to internal failure of components that provide specific hazard treatment, such as bonding and circuit protection, and result in electrical fires or smoke and fumes. The worst-case environmental conditions that the role equipment may be subjected to in the host aircraft should be established and the equipment evaluated against these conditions to determine if it can be safely installed and operated, prior to approval for use.

Electromagnetic compatibility

(e) Defence aircraft electrical and electronic systems are designed to satisfy the electromagnetic compatibility requirements prescribed in the aircraft's certification basis. However, role equipment may not be designed to standards that provide a similar level of electromagnetic compatibility with the sometimes sensitive equipment found on aircraft. Consequently, the equipment is unlikely to have been certified as compliant with the E3 design requirements prescribed for the host aircraft systems and equipment. Therefore, an evaluation of the role equipment should be undertaken to verify that there will be no impact on safe aircraft operations as a result of electromagnetic interference. This evaluation may require analysis of extant EMI/EMC certification of the role equipment or additional testing if required, and the establishment of any additional limitations on role equipment operation (eg phases of flight that the equipment can be safely operated or location of the equipment during operation).

(f) The requirements detailed in DASDRM Section 2 Chapter 4, Electromagnetic Environmental Effects can be used as a template for determining those elements of electromagnetic compatibility that require evaluation. Where the host aircraft certification basis for electromagnetic environmental effects is uncertain, the requirements in Section 2 Chapter 4 provide an initial benchmark for role equipment evaluation. Further information on electromagnetic compatibility issues is provided within the PEE guidance section of this Annex.

Electrical system design

(g) Role equipment is unlikely to have been certified as compliant with the electrical systems design requirements prescribed for Defence aircraft. Many items of role equipment are designed to commercial specifications and standards, which provide significant latitude for

Superseded

designers when establishing whether the system is safe. For example, the wiring used in role equipment often is insulated using the cheapest and most reliable materials for the commercial application (eg PVC insulation). Such insulation may not be suitable for aircraft use. Therefore, any non-compliance with Defence aircraft electrical system requirements should be identified and the impact on safe aircraft operations, if any, established together with any associated limitations on role equipment operation (eg additional circuit protection, limitations on connection to aircraft power supplies or permitted battery types).

(h) The requirements detailed in DASDRM Section 3 Chapter 8, Electrical Systems can be used as a template for determining those elements of electrical systems compatibility that require evaluation. The following paragraphs detail specific guidance for role equipment electrical systems compatibility issues.

(i) **Electrical Wiring.** Several types of electrical wiring, for example those with Polyvinyl Chloride (PVC) or Polyimide (Kapton) insulation, exhibit undesirable properties and are therefore either prohibited or restricted for use in Defence aircraft. A similar approach should be adopted for role equipment wiring. DASDRM Section 3 Chapter 8 Electrical Systems, details the Authority prescribed design requirements for aircraft wiring which should be applied to role equipment where reasonable and pragmatic. Wiring that connects role equipment to aircraft power outlets should be routed so that it does not interfere with normal aircraft operations or impede access to, or use of, the role equipment.

(j) **Bonding.** Where practicable, all metallic components of role equipment should be electrically bonded to each other and to the airframe to protect the equipment and the aircraft against the effects of static electricity and lightning.

(k) **Battery Powered Equipment.** Role equipment with installed batteries should be subjected to regular inspections to ensure the battery is physically sound and no leakage of electrolyte has occurred. If these inspections are not included in the equipment servicing schedules, a pre-flight inspection of batteries should be included in an aircraft special (S) servicing for fitment of the role equipment. Batteries should be assessed to confirm that they are compatible with the worst-case environment likely to be experienced when the equipment is installed in the host aircraft.

(l) **Electrical Power Connections.** Where role equipment is to be connected to an aircraft power supply (either directly or through some form of power conversion equipment) military specification electrical connectors should be used wherever possible. Where this is not practicable, a safety assessment of the connectors should be conducted and any identified hazards appropriately treated.

(m) **Main Electrical Power Switch.** Each item of electrically powered role equipment that will utilise aircraft power should be fitted with a single ON/OFF power switch in the appropriate power line. The switch should be guarded and there should be an indication that the power supply is switched on. Circuit breakers should not be used to fulfil this requirement unless they have been specifically designed for this purpose.

(n) **Overcurrent Protective Devices.** Each item of electrically powered role equipment that will utilise aircraft power should be fitted with an overcurrent protective device. The protective device should be fitted as close as practicable to the entry point of power to the equipment.

Role equipment incorporating oxygen systems

(o) Role equipment that incorporates an oxygen system is unlikely to be designed to Defence aircraft design standards and may therefore pose an increased fire hazard. In particular, items of role equipment used for medical purposes (Aeromedical Evacuation Equipment (AMEE))

Superseded

are often commercially available equipment that is designed for hospital or general medical use using commercial specifications and standards, which provide significant latitude for designers when establishing whether the system is safe. For example, the oxygen piping used in role equipment is often PTFE tubing or similar, which is not usually suitable for aircraft systems and may pose an increased risk of leakage, or ignition and consequent fire hazard. Role equipment containing oxygen also presents particular hazards in an aircraft environment that may not be relevant in the equipment's 'normal' use (eg confined spaces and oxygen enriched atmospheres in the presence of oils/lubricants used on aircraft components). Further, compatibility with the host aircraft oxygen system must be established (eg aircraft oxygen systems provide dry breathing oxygen while most medical systems require oxygen with a defined moisture content) where the aircraft system will provide the oxygen supply. Connections between the host aircraft and role equipment systems must also be secure and prevent the escape of oxygen.

(p) While adoption of the host aircraft's oxygen system design requirements may appear reasonable, aircraft oxygen systems are designed within a system safety framework that provides a robust approach to identification and treatment of hazards. For oxygen systems, this approach results in a comprehensive risk treatment program that includes: filtration (for replenishment support equipment and at the aircraft system filler valve), pressure reduction, selection of fire resistant materials, prescribed maintenance practices and inspections, and so on. Role equipment oxygen systems, on the other hand, are unlikely to have been designed under the same rigorous approach to hazard identification and treatment. Consequently, oxygen systems in role equipment should be designed to comply with the requirements in DASDRM Section 3 Chapter 6, to ensure that a 'systems' approach to design is followed that includes fire-resistant materials, filters, pressure reduction and so on.

(q) Any non-compliance with Defence aircraft oxygen system requirements should be identified and the impact on safe aircraft operations should be evaluated before approval for use is granted. Further, any additional limitations or caveats on role equipment operation (eg additional testing required, limitations on connection to aircraft oxygen supplies or requirements for physical restraint of oxygen bottles) to ensure that the equipment can be safely installed and operated should be established and promulgated in associated role equipment and/or aircraft operating procedures.

Role equipment mounting and restraint

(r) Role equipment is unlikely to have been previously evaluated to confirm that it is physically capable of withstanding the significant forces involved in a crash or hard landing in an aircraft. The crash protection features of the host aircraft may be compromised by role equipment that is not designed to, or is not mounted using devices that can, withstand these forces. Consequently, role equipment must be capable of being restrained in such a manner that it does not become a projectile, or break apart, in a crash or hard landing.

(s) Role equipment should be evaluated prior to approval for use, to ensure that the equipment design can be appropriately restrained and can withstand crash or hard landing forces in the host aircraft. Any additional limitations on role equipment fitment or operation (eg location of the equipment during operation and/or physical restraint methods) to ensure that the equipment remains safe when installed in the aircraft should also be established and promulgated in relevant equipment and/or aircraft procedures. The following paragraphs provide specific guidance for role equipment mounting.

(t) **Fastener Hardware.** Fasteners should be suitable for the intended application and retain items securely without loss of joint integrity or separation of fastener parts when the equipment is subjected to the maximum expected vibration or to the likely loads experienced

Superseded

during a hard or crash landing. Screwed fasteners should be either of the self-locking variety or should be lock-wired to ensure security during operation.

(u) **Mounting and Securing.** Suitable restraint devices should be provided which are capable of securing the role equipment against the maximum load forces expected (advice should be sought from Air Movements Training and Development Unit (AMTDU) where required). For non-standard and trial modifications where role equipment is permanently attached to the aircraft rather than restrained in a manner similar to cargo, the restraint of equipment should be designed in accordance with the Aircraft Structural Integrity Management Plan (ASIMP). Floor loading of the item should not exceed values for each aircraft type as detailed by AMTDU. Removable attachments, when not in use, should be securely stowed on the equipment.

Personnel hazards

(v) Role equipment designs may introduce physical hazards to personnel when installed in Defence aircraft that are not present in the 'normal' operational environment of the equipment. Further, the equipment is unlikely to have been previously evaluated to confirm that it does not pose a hazard to personnel during flight or emergency evacuation. Physical design issues such as sharp edges or protruding components of the role equipment may also result in hazards that are not considered important for the equipment's 'normal' use, but may be substantial hazards in an aircraft environment, resulting in injury or entanglement in turbulence or evacuations. Equipment should be mounted in the host aircraft in a location that will not impede normal and emergency ingress/egress. Additionally, the equipment should not impede access to aircraft emergency equipment and systems such as manual landing gear extension areas.

Continuing airworthiness

(w) While safe operation of role equipment on Defence aircraft will initially be established through the evaluation in support of approval to operate the role equipment, inadequate maintenance practices or changes in role equipment configuration may compromise the level of safety established during this initial evaluation. Many items of role equipment are not aviation materiel and are therefore not managed by aircraft support agencies. In the past, role equipment issues as a result of failure to adopt appropriate maintenance practices or the incorporation of changes to the role equipment configuration (either approved by the managing CASG support organisation or under a 'field approval') have compromised role equipment safety. To avoid these issues, suitable maintenance programs and/or arrangements with the role equipment or PEE managing CASG support organisation should be established to ensure that any such changes are communicated and can be evaluated for impacts on the extant approval for use.

Superseded

ANNEX B - GUIDANCE ON ESTABLISHING PEE SAFE ZONES

GUIDANCE ON ESTABLISHING PEE SAFE ZONES

INTRODUCTION

(a) PEE may incorporate intentional emitters whose emissions may exceed the certified thresholds for aircraft systems interference. However, some larger Defence aircraft may support the establishment of a PEE safe zone that permits the operation of PEE, with only a limited evaluation to confirm that the emissions of the equipment do not exceed the maximum levels associated with the zone. Establishing this zone could reduce the effort required to approve PEE for use. To support the operation of PEE on Defence aircraft, where relevant, PEE safe zones can be established. This Annex provides guidance on design considerations for establishing PEE safe zones to support operational approvals.

PEE SAFE ZONES - GUIDANCE Impact of PEE on Aircraft systems

(b) Defence aircraft are normally designed to be more immune to electromagnetic radiation than civilian aircraft. Despite this, Defence aircraft may in fact be more susceptible to interference from PEE for the following reasons:

1. **Physical Separation.** Electromagnetic energy decreases rapidly with distance, and therefore physically separating PEE from aircraft equipment is an effective means of minimising interference. In civilian aircraft, PEE are almost always used in clearly defined areas (that is, while the passenger is seated), and therefore the physical separation between PEE and aircraft equipment/wiring can be incorporated into the aircraft design. Military aircraft, on the other hand, do not always have clearly defined seating positions, they often have equipment racks and looming within the passenger compartment, and they allow passengers to move freely throughout the entire passenger compartment.

2. **Differences in Role.** Unlike civilian aircraft, the mission effectiveness of Defence aircraft is dependent on a wide array of electromagnetically sensitive equipment, for example, electro-explosive devices (EEDs), a profusion of antennas, sensitive role equipment and so on. Interference from PEE can therefore be more than just a ‘nuisance’ factor, and its acceptability may depend on the configuration of the aircraft or even the particular mission phase.

3. **Modifications.** Military aircraft are likely to undergo many more modifications than civilian aircraft during their lifecycle. Each modification has the potential to reduce the overall electromagnetic ‘hardness’ of the aircraft. For example, the lack of space within military aircraft often leads to non-optimal equipment locations and routing of wires, new capabilities may incorporate additional antennas which increase the likelihood of interference, and any one poorly designed or incorporated modification can introduce vulnerabilities both in itself and also to other systems.

(c) Notwithstanding the above factors, larger Defence aircraft are likely to support the definition of PEE ‘safe zones’; that is, areas where the risk from PEE is equivalent to commercial aircraft, and therefore commercial airline precautions for PEE may provide a basis for confirming compatibility with the host aircraft (eg non-transmitting PEE may be used freely during all aircraft operational phases). The remaining areas of the passenger compartment may be considered PEE ‘danger zones’ and PEE should not be used unless specifically authorised.

Superseded

These PEE danger zones probably only account for a small portion of the available space in larger Defence aircraft.

(d) Once the PEE safe zone for an aircraft has been established, the operation of PEE during critical phases of flight (if an operational requirement) should be evaluated to confirm that such operation will not result in interference to aircraft systems.

Establishing PEE Safe Zones

(e) When assessing the interference potential between PEE and aircraft systems, three modes of coupling need to be considered, namely PEE-to-equipment, PEE-to-wiring and PEE-to-antennas. Once the safe distances for each of these modes have been established for a particular aircraft, a PEE safe zone can be defined.

(f) For illustration purposes, worst-case PEE emissions of 1 V/m (within a few centimetres of the PEE) will be assumed.[1]

(g) **PEE to Equipment Coupling.** In civil aircraft, the possibility of PEE coupling directly to critical aircraft equipment is discounted, probably because they cannot be collocated on civil aircraft. However, within military aircraft, electronic equipment is often located within, or immediately adjacent to, the passenger compartment. PEE-to-equipment coupling should therefore be considered.

(h) Safety-critical equipment on an aircraft will normally be rated to withstand between 100V/m and 200V/m. Even allowing for significant degradation of the equipment over its lifecycle, susceptibility to PEE emissions for this equipment is still exceedingly unlikely. However, some categories of non-critical aircraft equipment only require testing to 1V/m. In this case, even without allowing for some equipment degradation over the years, there is potential for PEE interference. Consequently, some separation between equipment and PEE would be prudent.

(i) To determine a 'PEE safe zone' from equipment, a survey of the equipment in the aircraft passenger compartment would be required, followed by an assessment of the electromagnetic immunity of each piece of equipment. Some testing of the shielding effectiveness of the equipment racks or bulkheads could also be incorporated into the assessment. Adequate safety margins would then be added, and the resulting safe zone defined. If deemed necessary, some limited testing might be conducted to confirm the analysis.

(j) **PEE-to-Wiring Coupling.** While civil research[2] has concluded that harmful interference from PEE is unlikely to couple onto cables, the methodology used to arrive at this conclusion was questionable, and may be a reflection of the limited scope of analysis undertaken in the study. For Defence aircraft, the conducted susceptibility rating of equipment, the shielding effectiveness of applicable wires and the worst-case PEE emissions should be used to derive an appropriate separation distance.

(k) **PEE-to-Antenna Coupling.** The extremely small signal levels used by aircraft antennas (including connectors and associated cabling) makes them a prime target for interference from PEE. While it would be possible (with substantial difficulty) to predict how PEE might couple to an aircraft's antenna systems, the results are unlikely to be particularly useful since they rely on a number of independent conditions that are difficult to establish. Realistically, the chance of a PEE insidiously affecting aircraft systems via antenna coupling is extremely low, since there would normally be some outward sign of interference (eg erratic pointer movement, 'buzzing' or 'hash' over communications and so on). Given that banning all PEE is not a realistic option, the original civil alternative was to ensure that PEE were used only

Superseded

during non-critical phases of flight. However, recent research conducted by the FAA and EASA has concluded that such restrictions are unnecessary, provided that the PEE can be operated in a non-transmitting mode. This may provide an abbreviated approach for assessing the suitability of PEE for use on civil-derivative aircraft.

Operation of Transmitting PEE

(l) If transmitting PEE is to be used in a host aircraft, the safe distances from safety-critical and mission-critical equipment and wiring (based on the immunity ratings of the equipment) can be calculated. In addition, a frequency band assessment may be conducted to determine likely interference with the aircraft's radios and navigation systems. A suitable safety margin should then be added to all analysis figures, and an appropriate area of the aircraft assigned for the transmitter. Source/victim testing should then be conducted, first on the ground and then airborne, to verify the validity of the analysis.

Operation of PEE Outside the Safe Zone

(m) The following provides guidance for assessing PEE for use in the PEE 'danger zone':

1. If the approximate emission levels of the PEE are known (eg it is a common brand name, and marked as tested to a recognised commercial E3 standard) and it will not be used in the vicinity of safety-critical equipment/wiring, little further analysis would probably be required. Source/victim testing might be used if there was thought to be potential for interference with mission-critical equipment or wiring.

2. If there is any uncertainty in the device's emission levels it may require testing to a known standard, either commercial or military.

3. If the device is to be used immediately adjacent to safety-critical equipment or wiring then it should be tested to a stringent level that is known not to interfere with any aircraft systems (eg MIL STD 461E). Similarly, if there is any uncertainty as to where in the aircraft the device might be used, such testing may also be required.

PEE supporting urgent/contingency capability

(n) Defence capability needs may require the operation of a PEE of unknown characteristics in a host aircraft. In these circumstances, there may be limited opportunity to conduct even a limited technical evaluation to determine whether the device can be safely operated on the host aircraft. Nevertheless, an operational assessment of the device (using an abridged source/victim test methodology for example) should be conducted to provide some measure of confidence that the device will not pose an unacceptable risk to safe flight.

Superseded

PETROLEUM, OILS, LUBRICANTS AND ALLIED PRODUCTS

7.1 Petroleum, Oils, Lubricants and Allied Products (POLAP) refers to the fuels, oils, hydraulic fluids, greases, corrosion inhibitors and coolants that are used within or applied to aircraft. POLAP requirements for Defence aircraft, and the approval of such products, are considered during the aircraft (and/or engine) type certification and are documented within the certified type design. Approved POLAP is detailed in either the Type Certificate Data Sheet (for aircraft and/or aircraft engines), or in associated aircraft and engine Instructions for Continued Airworthiness (ICA), including the aircraft flight manual.

7.2 Consequently, the Authority does not prescribe airworthiness design requirements for POLAP. Compliance with the requirements for establishing the approved suite of POLAP for an aircraft/engine per the recognised NAA/MAA Airworthiness Codes at Section 1 Chapter 2 is appropriate.

7.3 Importantly, access to approved POLAP to support operations may have significant impacts on capability and interoperability. When seeking to acquire a Defence aircraft or aircraft engine, the responsible project office should engage with the Fuel Services Branch (FSB) to ensure that approved POLAP will be available for all proposed operational scenarios.

7.4 In-service management requirements for POLAP are documented in DEF(AUST) 206 Petroleum, Oils and Lubricants Handbook and DEF(AUST) 5695 Petroleum, Oils and Lubricants Manual. Further advice associated with management of POLAP for Defence aviation use can be provided by the FSB - Product Stewardship.

Superseded

AIR NAVIGATION SYSTEMS

INTRODUCTION

8.1 Air Navigation Systems comprise that equipment necessary to provide an Air Navigation Service (ANS). DASR defines ANS as those services provided to air traffic during all phases of operations (approach, aerodrome and en route). Under DASR, ANS only includes air traffic management (ATM), meteorological services for air navigation (MET) and aeronautical information services (AIS). ATM is a generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. Under DASR the two subsets of ATM are 'Air Traffic Control' and 'Communications, Navigation and Surveillance'.

8.2 This chapter focuses on ATM equipment and does not provide design requirements for equipment used in MET/AIS services. Neither does the chapter cover the design of MET/AIS products provided to aircraft operators and ATM service providers. Further, when an ANS system comprises both ground-based and aircraft-based equipment, design requirements for the latter are provided in the relevant chapters of Section 3.

Scope

8.3 This chapter presents the Authority-prescribed aviation safety design requirements for ATM equipment. The design requirements are primarily based on International Civil Aviation Organisation (ICAO) and European Organisation for the Safety of Air Navigation (Eurocontrol) standards, supplemented where necessary by military-specific requirements. The chapter also discusses software safety assurance as it relates to software used within ATM equipment.

AIR TRAFFIC MANAGEMENT EQUIPMENT DESIGN REQUIREMENTS

8.4 Based on the ICAO taxonomy, ATM equipment within the scope of this chapter comprises the equipment in Table 1.

System	Equipment
Surveillance	Primary Surveillance radars
	Secondary Surveillance radars
	ADS-B Ground Station
	Surveillance Display System
	Universal Access Transceiver (UAT)
Radio Navigation aids	Instrument Landing System (ILS)
	Precision approach radar
	VHF Omnidirectional Ranging (VOR)
	Non Directional Beacon (NDB)
	Distance Measuring Equipment (DME)

Superseded

	VHF marker beacons
	Global Navigation Satellite System (GNSS)
	Microwave Landing System (MLS)
	Tactical Air Navigation System (TACAN)
Digital Data Communications Systems	Aeronautical communications network equipment
	Aeronautical Mobile-Satellite (Route) Service equipment (AMS(R)S)
	SSR Mode S Air-Ground Data Link
	VHF Air-Ground Digital Link (VDL)
	Aeronautical Fixed Telecommunications Network
	Aircraft Addressing System
	Point-to-Multipoint Communications
Voice Communications Systems	Aeronautical Mobile Service equipment
	Selective Calling (SELCAL) System equipment
	Aeronautical Speech Circuits

Table 1: Air Navigation System Equipment

8.5 Guidance. For achieving safe design and function for Air Navigation Systems, many systems have design requirements prescribed by the International Civil Aviation Organization (ICAO). These design requirements define those attributes of ANS or CNS equipment performance that underpin safe operation. In order to demonstrate compliance with the ICAO requirements referenced in this chapter, it is expected that, for the technical solution proposed, evidence will be produced to satisfy the outcomes listed in the relevant ICAO "documents" (ie Standards, Handbooks, Technical Provisions and Circulars). DASA can provide the latest complete list of ICAO documents that apply to the technical solution selected.

RADAR

PRIMARY SURVEILLANCE RADARS

8.6 Primary (independent or non-cooperative) surveillance radars (PSR) determine the position of objects in range and azimuth by illuminating a large portion of space with an electromagnetic wave and receiving back the reflected waves from objects within that space.

8.7 Unlike for other ANS equipment, ICAO does not publish PSR design requirements within its series of Annex 10 Aeronautical Telecommunications publications. Instead, the most comprehensive source of design requirements is the Eurocontrol Specification for ATM Surveillance System Performance, Eurocontrol-Spec-147, Edition 1.1, 2 Jul 15. However, the requirements within this standard relate to European airspace which is considerably denser than that typically encountered in Australia. Consequently, many of its requirements are overly prescriptive and need to be tailored for the Australian Defence application, including the use of deployable Defence Air Traffic management systems, where physical constraints, such as antenna size, affect performance. The PSR design requirements detailed below reflect this tailoring.

8.8 **Design Requirement (Essential).** PSR must comply with the following requirements within its Defence-defined technical commissioning volume, noting that the lower edge of the coverage

Superseded

volume shall be defined by screening by terrain, vegetation and/or infrastructure surrounding the radar:

(a) **Probability of Detection.** Within the defined PSR coverage volume of the SSR, the Probability of Detection (Pd) defined as the ratio of the number of target reports with measured position to the number of total expected reports shall be:

1. for a $2m^2$ target within the PSR coverage volume. ≥ 80%

2. for a $0.5m^2$ target within the PSR coverage volume to range ≤ 30NM and altitude ≤ 10k ft. ≥ 90%

(b) **False Target Reports.** Average number of false target reports per antenna rotation. ≤ 20

(c) **Performance requirements.** To demonstrate that a PSR meets the update, accuracy and specific requirements for safe and effective radar control service, it is required in to show compliance with the requirements of EUROCAE ED-261-1 Safety and Performance Requirements Standard for a Generic Surveillance System GEN-SUR SPR Volume 1. Specifically the requirements for the defined coverage volume of the radar.

8.9 **Design Requirement (Essential).** PSR as part of a cooperative surveillance system must provide the following message-structured and digitised information:

(a) **Positional data:** horizontal (2D) position and time of applicability of horizontal position (for conformity assessment).

(b) Surveillance data status: cooperative/non-cooperative/combined and coasted/not coasted (position).

SECONDARY SURVEILLANCE RADARS

8.10 Secondary (cooperative) surveillance radars determine the position of aircraft in range and azimuth using ground-based transmitters/receivers (interrogators) and aircraft-based transponders.

8.11 **Design Requirement (Essential).** Secondary Surveillance Radars must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Volume IV Surveillance and Collision Avoidance Systems, Edition 4, Chapters 2 and 3, except for the following:

(a) **Paragraphs 2.1.2.1.1-3.** Defence engages with Airservices Australia to co-ordinate various SSR matters such as the assignment of pulse recurrence frequencies, interrogator identification codes and surveillance identifier codes. Airservices Australia publishes information in Airways Engineering Instructions.

(b) those sections which provide requirements for aircraft transponders including reply transmissions initiated by the transponder.

(c) section 3.1.2.8.4 which provides the air-to-air transaction protocol.

8.12 **Design Requirement (Essential).** Secondary Surveillance Radars operating in Mode S must comply with the requirements of Eurocontrol Specification for European Mode S Station, Edition 4.0, 17 Aug 21.

Superseded

ADS-B GROUND STATIONS

8.13 Automatic Dependent Surveillance–Broadcast (ADS–B) is a surveillance technology in which an aircraft determines its position via satellite navigation or other sensors and periodically broadcasts it, enabling it to be tracked. The information can be received by ADS-B ground stations without interrogation signals from the ground.

8.14 **Design Requirement (Essential).** ADS-B Ground Stations must:

(a) comply with the requirements of EUROCONTROL ED-129B Technical Specification for a 1090MHz Extended Squitter ADS-B Ground Station, March 2016, except for the following:

1. **Paragraph 3.2.1.** The requirement for simultaneous processing of messages from at least 250 ADS-B targets is based on European traffic densities and may be reduced after appropriate analysis.
2. Paragraph 3.10.4.32 which concerns surface targets.
3. **Paragraph 4.1.** The relevant Australian environmental conditions are detailed in DEF(AUST) 5168/09 The Climatic and Environmental Conditions Affecting the Design of Military Materiel, Issue 2, May 2009.
4. Chapter 5 which concerns test procedures.
5. Chapter 6 which specifies the conditions for site acceptance testing.
6. Section 2.6 on software system integrity.

(b) ensure the ADS-B Sensor processing delay, under full load conditions, from the moment a valid ADS-B Radio Frequency message is received to the moment when the corresponding report starts to be transmitted at the ADS-B Sensor Data Output Interface shall not exceed 0.5 seconds.

(c) ensure that airborne messages are processed in accordance with the requirements of ICAO document 9871 Technical Provisions for Mode S Services and Extended Squitter.

(d) receive and process messages as defined in DO-260C Minimum Operational Performance Standards for 1090 Mhz Extended Squitter Automatic Dependent Surveillance - Broadcast (ADSB) and Traffic Information Services – Broadcast (TIS-B), December 17, 2020, except for those requirements relevant to aircraft systems.

(e) detect targets by receiving ADS-B transmissions within the Defence-defined Cooperative Target Coverage Measurement Volume.

SURVEILLANCE DISPLAY SYSTEMS

8.15 Surveillance Display Systems comprise that equipment which fuses inputs from various sensors and displays information to system operators, with the content and in the format required, for them to discharge their ATM roles and responsibilities. No single international standard provides a single source of appropriate design requirements.

Superseded

8.16 **Design Requirement (Essential).** Surveillance Display Systems must comply with the requirements of UK CAP 670 Air Traffic Services Safety Requirements, third issue, 1 Aug 19, SUR 11: Display System Requirements for Surveillance Systems except for:

(a) Ignore all references in round brackets which cross-reference to ICAO annex provisions through a UK CAA internal database).

(b) For those requirements which require an assessment and/or justification to determine their suitability/appropriateness for the operational environment, that assessment must consider the applicable system safety context. Relevant requirements are SUR11.23/24/25/26/28/36/46 and 85.

(c) Those requirements couched as recommendations are not essential.

(d) **SUR11.4.** Ignore reference to ANO 2016 Article 205.

(e) **SUR11.34.** The system shall comply with any relevant Australian low-voltage legislation.

(f) SUR11.45/72/76/81/83/111/125 which are not design requirements.

(g) SUR11.71 Notes 1 and 2 which are not design requirements.

8.17 **Design Requirement (Essential).** ATM display systems must comply with the following requirements:

(a) The mandatory performance requirements for 5 NM and 3NM horizontal separation detailed in Eurocontrol-Spec-047 Volume 1, except for the following:

1. **Section 3.4.3. REQ 5N_C-R3.** Ratio of missed position updates involved in long gaps (larger than 3 maximum update periods + 10%). Gap ratio in both 2D and 3D position updates ≤ 0.1%.
2. **Section 3.4.3. REQ 5N_C-R12.** Delay of change in emergency indicator/SPI report ≤ 12s in 95% of cases.
3. **Section 3.4.3 REQ 5N_C-R13.** Delay of change in aircraft identity ≤ 24s in 95% of cases.
4. **Section 3.4.4 REQ 3N_C-R3.** Ratio of missed position updates involved in long gaps (larger than 3 maximum update periods + 10%). Gap ratio in both 2D and 3D position updates ≤ 0.1%.
5. **Section 3.4.4. REQ 3N_C-R12.** Delay of change in emergency indicator/SPI report ≤ 7.5s in 95% of cases.
6. **Section 3.4.4 REQ 3N_C-R13.** Delay of change in aircraft identity ≤ 15s in 95% of cases.

(b) There should be one spare ATC Radar Data Processing (RDP) display per system available for use in the event of a single RDP Display failure.

(c) Where it is possible to change the QNH (or QFE) remotely, the system shall require the change to be drawn to the controller's attention and confirmed on all other displays.

(d) The display system must be designed to support the range of in-service integrity monitoring detailed in ICAO Document 8071 Manual of Testing of Radio Navigation Aids Volume III Testing of Surveillance Radar Systems, 1st edition, Amendment 2.

Superseded

8.18 Radio navigation aids apply radio frequencies to help aircraft fly specified navigation routes and aid approach, landing and departure. Various aids can provide angular directions, distances and sometimes velocities.

INSTRUMENT LANDING SYSTEM (ILS)

8.19 **Description of ILS.** The ILS is designed to provide an approach path for exact alignment and descent of an aircraft on final approach to a runway. The system may be divided functionally into three parts:

(a) guidance information: localizer, glide slope.

(b) range information: marker beacon and DME.

(c) visual information: approach lights, touchdown and centerline lights, runway lights.

8.20 **Design Requirement (Essential).** ILS must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1, Radio Navigation Aids, Section 3.2 Specification for ILS, except for the following:

(a) Paragraph 3.1.3.3.3. Note 2 only applies to the design of aircraft equipment

(b) Paragraph 3.1.3.10 Siting does not contain equipment design requirements and is therefore not applicable.

PRECISION APPROACH RADAR (PAR)

8.21 **Description of Precision Approach Radar.** A PAR is a radar guidance system designed to allow air traffic controller to provide lateral and vertical guidance to an aircraft for landing, until the landing threshold is reached.

8.22 **Design Requirement (Essential).** Precision approach radar must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1, Radio Navigation Aids, Section 3.2 Specification for precision approach radar system, except for the following:

(a) Paragraph 3.2.3.2 Siting does not contain equipment design requirements and is therefore not applicable.

VHF OMNIDIRECTIONAL RANGE (VOR)

8.23 **Description of VOR.** VOR is a type of short-range, line-of-sight radio transmitter enabling aircraft with a receiving unit to determine a bearing from the VOR station to the aircraft.

8.24 **Design Requirement (Essential).** VOR must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.3 Specification for VHF omnidirectional radio range (VOR).

NON DIRECTIONAL BEACON (NDB)

8.25 NDBs are low or medium frequency radio beacons transmitting nondirectional signals whereby the pilot of a properly equipped aircraft can determine bearings and 'home' on the

Superseded

station. NDBs normally operate between 190-535 kHz, transmitting a continuous carrier with either 400 or 1020 Hz modulation.

8.26 **Design Requirement (Essential).** NDB must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.4 Specification for non-directional radio beacon (NDB), except for the following:

(a) **Paragraph 3.4.4.1.** NDB radio frequencies are allocated by the Defence Spectrum Office.

(b) Paragraph 3.4 Siting of Locators does not contain equipment design requirements and is therefore not applicable.

(c) Paragraph 3.4.8 Monitoring does not contain equipment design requirements and is therefore not applicable.

DISTANCE MEASURING EQUIPMENT (DME)

8.27 In the operation of DME, paired pulses at a specific spacing are sent out from the aircraft (the interrogation) and are received at the ground station. The ground station (transponder) then transmits paired pulses back to the aircraft at the same pulse spacing but on a different frequency. The time required for the round trip of this signal exchange is measured in the airborne DME unit and is translated into distance from the aircraft to the ground station.

8.28 **Design Requirement (Essential).** DME must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.5 Specification for UHF distance measuring equipment (DME), except for the following:

(a) Paragraph 3.5.2.6.3.1 does not contain equipment design requirements and is therefore not applicable.

(b) Paragraph 3.5.3.3.3. DME operating channels are allocated by the Defence Spectrum Office.

(c) Paragraph 3.5.3.3.4 Area channel assignment. The number of specific DME operating channels shall be decided in coordination with Air Services Australia.

(d) Those sections of paragraphs 3.5.5.1 through 3.5.5.4 which only apply to aircraft interrogators.

(e) Paragraph 3.11.6 Airborne equipment characteristics which only applies to airborne equipment.

VHF MARKER BEACONS

8.29 **Description of VHF marker beacons.** A VHF marker beacon is a particular type of VHF radio transmitter which vertically radiates a distinctive pattern for providing position information to aircraft. VHF marker beacons are usually used in conjunction with an instrument landing system to give pilots a means to determine position along an established route to a destination runway.

8.30 **Design Requirement (Essential).** VHF marker beacons must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.1.7 VHF Marker Beacons, except for the following:

(a) Paragraph 3.1.7.1.a. The Competent Authority is DASA.

(b) Paragraph 3.1.7.6 Siting does not contain equipment design requirements and is therefore not applicable.

Superseded

GLOBAL NAVIGATION SATELLITE SYSTEM

8.31 **Description of GNSS.** The GNSS is a space-based radio navigation system used to determine precise geo-spatial positioning anywhere in the world. The GNSS comprises a variety of satellite constellations (such as GPS, Galileo and GLONASS), aircraft receivers and ground based augmentation equipment.

8.32 **Design Requirement (Essential).** The ground-based GNSS elements must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.7.3.5 Ground-based augmentation system (GBAS) and ground-based regional augmentation system (GRAS).

MICROWAVE LANDING SYSTEM (MLS)

8.33 **Description of MLS.** MLS is an all-weather, precision approach and landing guidance system to enable an approaching aircraft to determine when it is aligned with the destination runway and on the correct glidepath for a safe landing. The position information is provided in a wide coverage sector and is determined by an azimuth angle measurement, an elevation angle measurement and a range (distance) measurement.

8.34 **Design Requirement (Essential).** MLS must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume 1 Radio Navigation Aids, Section 3.11 Microwave Landing System (MLS) Characteristics, except for the following:

(a) Paragraph 3.11.5.2.6 Siting does not contain equipment design requirements and is therefore not applicable.

(b) Paragraph 3.11.5.3.6 Siting does not contain equipment design requirements and is therefore not applicable.

(c) Paragraph 3.11.6 Airborne equipment characteristics only applies to the design of aircraft equipment.

TACTICAL AIR NAVIGATION SYSTEM (TACAN)

8.35 **Description of TACAN.** TACAN is a fixed site or deployable, terrestrial, short-medium range, omnidirectional air navigation military capability that provides azimuth, range and identification information on a dedicated frequency (channel. This information can be received by aircraft suitably fitted with military TACAN equipment and interpreted by aircrew to conduct air navigation in Instrument Meteorological Conditions (IMC). The TACAN operates in the Ultra High Frequency (UHF) band and employs a combination of discrete and complementary channels for use in surface to air operations.

8.36 **Design Requirement (Essential).** TACAN must meet the requirements of:

(a) MIL-STD 291C for the receipt, processing and transmission of the Standard TACAN Signal by a ground station.

(b) the DME section of this chapter for the TACAN's DME functions and performance.

8.37 **Design Requirement (Essential).** TACAN must:

(a) be capable of providing:

Superseded

1. a distance reply signal with characteristics defined in MIL-STD-291C for up to and including 100 aircraft interrogations simultaneously.

2. a distance reply signal with tolerances defined in MIL-STD-291C for up to and including 100 aircraft interrogations simultaneously.

3. azimuth information and ground station identity information to an unlimited number of aircraft.

(b) provide azimuth, distance measurement and identification information to at least 100 aircraft simultaneously with 80% reply rate in X-mode and 75% reply rate in Y-mode to interrogating aircraft transponders.

(c) provide at all radials an acquisition range (distance and no bearing unlock) up to and including 35NM at 1,500ft relative to the siting position in clear line-of-sight. (Note 1An airborne receiver sensitivity of -89 dBW/m^2 is assumed. Note 2: Range performance requirements are based on ideal conditions (environmental/atmospheric, no line of sight obstructions etc.).

(d) provide at all radials an acquisition range (distance and no bearing unlock) up to and including 100NM at 10,000ft relative to the siting position in clear line-of-sight. Note 1: An airborne receiver sensitivity of -89 dBW/m^2 is assumed. (exception for Richmond). Note 2: Range performance requirements are based on ideal conditions (environmental/ atmospheric, no line of sight obstructions etc.).

(e) provide a system monitoring function that shall:

1. detect that the TACAN Mission System is providing a signal in space noncompliant with MIL-STD-291C signal in space requirements.

2. continuously verify all azimuth signal parameters, reply delay parameters and station identification signal timing parameters.

3. have a Continuous Built in Test (BIT) Function that shall detect.

4. 95% of TACAN Mission System faults.

5. TACAN faults to a single Line Replaceable Unit with a 98% level of confidence.

6. have a False Alarm Rate not exceeding one ‘no faults found’ per five continuous days of operation.

7. detect failure of the system monitoring function ability to monitor itself.

8. maintain a log of all monitored alarm information, all operator exercised functions and all operator configuration changes applied to the TACAN.

9. archive all logs produced for a period of no less than 30 days.

10. allow operators to retrieve archived information for performance analysis or investigation purposes.

11. raise an alarm when parameters no longer comply with MIL-STD-219C.

12. raise an alarm on detection of a system fault.

Superseded

13. provide both visual and audible alarms.

14. transmit system alarms to maintainers.

DIGITAL DATA COMMUNICATIONS SYSTEMS

8.38 **Description of Digital Data Communications Systems.** Digital data communication systems comprise those system using digital rather than analog technology.

AERONAUTICAL COMMUNICATIONS NETWORK EQUIPMENT

8.39 **Description of Aeronautical communications network equipment.** The aeronautical telecommunication network (ATN) comprises application entities and communication services which allow ground, air-to-ground and avionics data subnetworks to interoperate by adopting common interface services and protocols based on the International Organization for Standardization (ISO) open systems interconnection (OSI) reference model.

8.40 **Design Requirement (Essential).** Aeronautical communications network equipment must meet the requirements of ICAO Annex 10 Aeronautical Telecommunications Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 3 Aeronautical Telecommunication Network.

AERONAUTICAL MOBILE-SATELLITE (ROUTE) SERVICE EQUIPMENT (AMS(R)S)

8.41 **Description of AMS(R)S.** AMS(R) is a satellite-based communication service used for safety and regularity of flights.

8.42 **Design Requirement (Essential).** AMS(R)S must meet the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 4 Aeronautical Mobile-satellite (Route) Service (AMS(R)S), except for Section 4.5 on satellite design requirements.

SSR MODE S AIR-GROUND DATA LINK

8.43 Reserved.

8.44 Reserved.

VHF AIR-GROUND DIGITAL LINK (VDL)

8.45 **Description of VDL.** VDL is a datalink used to send information between aircraft and ground stations, and sometimes other aircraft.

8.46 **Design Requirement (Essential).** VDL must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 6 VHF Air-Ground Digital Link (VDL), except for the following:

(a) paragraph 6.1.2.1, Section 6.3 and 6.9.5.1.1.1 only apply to the design of aircraft equipment.

AERONAUTICAL FIXED TELECOMMUNICATIONS NETWORK (AFTN)

8.47 **Description of AFTN.** The AFTN is a worldwide system of aeronautical fixed circuits for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics. The AFTN is used to exchange information relevant to

Superseded

aircraft operations such as distress messages, urgency messages, flight safety messages, meteorological messages, flight regularity messages and aeronautical administrative messages.

8.48 **Design Requirement (Essential).** AFTN Network equipment must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 8 AFTN Network.

AIRCRAFT ADDRESSING SYSTEM

8.49 **Description of Aircraft Addressing System equipment.** Aircraft addresses are twenty-four-bit identifiers, with blocks of identifiers allocated by ICAO to the State of Registry.

8.50 **Design Requirement (Essential).** Aircraft Addressing System equipment must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 9 Aircraft Addressing System, except for the following:

(a) paragraph 9.1 which applies to aircraft design.

POINT-TO-MULTIPOINT COMMUNICATIONS EQUIPMENT

8.51 **Description of Point-to-Multipoint Communications equipment.** Point-to-multipoint wireless communications relates to fixed wireless data communications, via radio or microwave frequencies, usually in the gigahertz range, that have a large number of nodes, end destinations or end users. It provides multiple paths from a single location to multiple locations.

8.52 **Design Requirement (Essential).** Point-to-Multipoint Communications equipment must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 10 Point-to-Multipoint Communications.

UNIVERSAL ACCESS TRANSCEIVER (UAT)

8.53 **Description of UAT.** A UAT is a data link specifically designed to support ADS-B, bit can also support flight information service broadcasts and traffic information service broadcasts from proximate traffic.

8.54 **Design Requirement (Essential).** UAT must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part 1 Digital Data Communication Systems, Chapter 12 Universal Access Transceiver (UAT), except for the following:

(a) Paragraph 12.1.3, Section 12.3, paragraphs 12.4.3.(a) and (c) only apply to aircraft equipment.

VOICE COMMUNICATIONS SYSTEMS

VHF AERONAUTICAL MOBILE SERVICE EQUIPMENT

8.55 **Description of VHF Aeronautical Mobile Service equipment.** The Aeronautical mobile service is a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

Superseded

8.56 **Design Requirement (Essential).** VHF Aeronautical Mobile Service equipment must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part II Voice Communication Systems, Chapter 2 Aeronautical Mobile Service, except for the following:

(a) Section 2.3 System Characteristics of the Airborne Installation only applies to aircraft equipment.

(b) Paragraph 2.4.1.8.2 only applies to aircraft equipment.

UHF AERONAUTICAL MOBILE SERVICE EQUIPMENT

8.57 **Description of UHF Aeronautical Mobile Service equipment.** The Aeronautical mobile service is a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

8.58 **Design Requirement (Essential).** UHF Aeronautical Mobile Service equipment must comply with ETSI EN 302 617 Ground-based UHF radio transmitters, receivers and transceivers for the UHF aeronautical mobile service using amplitude modulation; Harmonised Standard for access to radio spectrum version V2.3.1 (2018-07). Use of another standard may be permissible after discussions with DoSA of Air Navigation Systems Providers.

SELECTIVE CALLING (SELCAL) SYSTEM EQUIPMENT

8.59 **Description of SELCAL system equipment.** SELCAL is a radio system used to alert an aircraft that a ground radio station wishes to communicate. A ground-based encoder and radio transmitter broadcasts an audio signal that is picked up by a decoder and radio receiver on the aircraft. The use of SELCAL allows an aircraft crew to be notified of incoming communications even when the aircraft's radio has been muted.

8.60 **Design Requirement (Essential).** SELCAL system equipment must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 2, Volume III Communication Systems, Part II Voice Communication Systems, Chapter 3 SELCAL System.

AERONAUTICAL SPEECH CIRCUITS

8.61 **Description of Aeronautical Speech Circuits.** Aeronautical Speech Circuits use analog means of transmitting voice through established circuits.

8.62 **Design Requirement (Essential).** Aeronautical Speech Circuits must comply with the requirements of ICAO Annex 10 Aeronautical Telecommunications, Edition 6, Volume III Communication Systems, Part II Voice Communication Systems, Chapter 4 Aeronautical Speech Circuits, except for the following:

(a) **Paragraphs 4.1.1/2.** The relevant ANSP shall decide the use and application of aeronautical speech circuit switching and signalling.

ATM SOFTWARE

8.63 Section 2 Chapter 3 describes the software safety assurance requirements for aviation software, namely software that is designed for installation within a part or appliance of an

Superseded

aeronautical product. Software is also used extensively in modern ATM systems to implement a range of functionality, some of which may be safety critical. Accordingly, as for aviation software, risks must be evaluated and treated during the development program through a robust software management system that incorporates the disciplines of software safety and software assurance.

8.64 This chapter defines the design requirements for robust applications of ATM software. It then identifies common approaches to the management of ATM software that meet the Authority's prescribed design requirements.

8.65 The design of ATM software that performs safety critical functions requires the application of two key software engineering principles that support the production of safe software:

(a) Software safety, which is integrated with system safety, where software hazards are identified, analysed and treated within the context of systems engineering principles.

(b) Software assurance, which defines the engineering rigour applied commensurate to the criticality of the functions performed by the Software.

SOFTWARE SAFETY – IDENTIFYING SOFTWARE-RELATED HAZARDS

8.66 A software specification error, design flaw, or the lack of initial safety requirements can contribute to or cause a system failure or erroneous operator behaviour. Software safety is used to address software's contribution to ATM hazards. It is an element of the ATM system safety and software development program and cannot be undertaken independently of the total effort.

8.67 **Design Requirement (Essential).** Software safety must be applied as part of the system safety program to identify any derived requirements and determine the worst credible failure condition for ATM software.

8.68 The Defence aviation approach to system safety and associated Authority prescribed requirements are detailed in Section 2, Chapter 2 and involves the identification of system level hazards. Software safety identifies the software contribution to those hazards, the development of derived requirements to mitigate the hazards and identifies the commensurate software assurance level to adequately mitigate the hazards. The following guidance is available to support the application of system safety to ATM systems:

(a) International good practice for system safety in the ATM context is published by EUROCONTROL Safety Assessment Methodology (SAM) – a framework of methods and techniques to develop safety assessment of changes to functional systems.

(b) System safety artefacts that support off-the-shelf systems must be considered for suitability in the Australian context.

8.69 Software safety brings together elements of traditional system safety approaches in conjunction with approaches used to address the unique properties of software. A major distinction of software safety assessments against the ATM level system safety aspects is the absence of likelihood (probabilities) for each consequence; i.e. while the consequences of software failures can be clearly identified, software risks cannot be characterised in terms of likelihood. Software failures will consistently occur given the same inputs or conditions. Instead, the worst credible failure conditions are assessed utilising methods such as Functional Hazard Assessment (FHA) and Hazard and Operability Study (HAZOP) to identify software related hazards, the consequences related to realisation of these hazards and potential mitigation actions. The worst credible failure condition of ATM software is dependent on how it influences functional hazards at the system level; i.e.

Superseded

software safety links the software architecture to hazards and their failure pathways through to the system level.

8.70 Software safety, when properly implemented, enables the proper identification and tracing of requirements, not only those applied from the system level, but also those requirements that are derived from design decisions. These derived requirements are used to incorporate design criteria and may be generic; e.g. performance and timing criteria or mandating the use of partitioning.

8.71 Since ATM software safety is a subset of ATM system safety, it must be an integral component of the formal system safety program discussed at Section 2, Chapter 2. The following documents present robust frameworks for identifying the relevant tasks, processes, activities, and guidance for inclusion in the ATM system safety program:

(a) IEEE-STD-1228-1994 Standard for Software Safety Plans.

(b) U.S. Department of Defence Joint Software Systems Safety Engineering Handbook, Version 1.0.

8.72 A software Assurance Level, commensurate with the worst credible failure condition identified, is utilised to establish the required software assurance safety objectives. Assurance Levels are obtained through proper application of the standards detailed in paragraph 16. The Authority is to be consulted on the use of other system or software safety standards as they may require tailoring to satisfy software safety objectives.

SOFTWARE ASSURANCE – MITIGATING SOFTWARE RELATED HAZARDS

8.73 Software assurance is closely coupled to software safety. As previously discussed, the Assurance Level for a given system is obtained through application of system safety and software safety. The assigned Assurance Level determines the processes applied to establish confidence that system development has sufficient rigour to limit the likelihood of development errors that could impact ATM safety.

8.74 **Design Requirement (Essential).** ATM software must satisfy the prescribed objectives required for the Software Assurance Level commensurate with its worst credible failure condition.

8.75 Software assurance is an activity that includes a range of certification objectives (or certification activities) to be satisfied in all phases of the development. The applicability of these certification objectives is dependent on the Assurance Level of the software, with higher Assurance Levels requiring an increased scope of certification objectives, thus providing a greater level of confidence in the software. The scope of certification objectives can cover the planning, requirements, development and verification phases of the program, as well as configuration management, quality assurance and certification liaison activities.

SOFTWARE LIFECYCLE – INTEGRATION OF THE SOFTWARE PRINCIPLES

8.76 ATM software has a life cycle that must be managed during development and in-service. Effective software life cycle management is an inherent part of the software safety and software assurance approaches. Software assurance objectives exist for assessment of the lifecycle processes and products, the rigour of which is based on the system Assurance Levels.

8.77 Effective management of the software life cycle ensures that compliance with the ATM software design requirements is considered at the planning stage, throughout development, and in-service operation. Software life cycle considerations can include supportability, documentation, tools, intellectual property, personnel expertise, interface control, problem reporting and tracking

Superseded

systems, language selection, and hardware requirements. In managing the ATM software life cycle, the Authority preferred approach is presented in ISO/IEC/IEEE 12207:2017(E) Systems and software engineering – Software life cycle processes.

AUTHORITY RECOGNISED APPROACHES TO ATM SOFTWARE

8.78 The Authority-recognised standard for ATM software assurance is EUROCAE ED109A/ RTCA DO278A Software Integrity Assurance Considerations for Communication, Navigation, Surveillance and Air Traffic Management (CNS/ATM) Systems of January 2012.

8.79 Two other internationally accepted ATM software assurance standards are:

(a) EUROCAE ED-153 Guidelines for ANS Software Safety Assurance of August 2009.

(b) IEC 61508 – Part 3 Functional safety of electrical/electronic/ programmable electronic safety-related systems – Part 3: Software requirements of April 2010.

8.80 Both these older standards may be appropriate for application to ATM software, but require greater care in their application to Defence ATM systems. Prior to adoption of these two standards, agreement on their application and any required tailoring should be sought from the Authority.

CNS / ATM CYBER SECURITY

8.81 Section 2 Chapter 12 describes the cyber security assurance requirements for protection of information systems against intentional unauthorised electronic interactions (IUEI). These cyber security threats are also applicable to modern CNS/ATM ground-to-ground or air-to-ground information systems, some of which may be safety critical. Accordingly, as for aviation systems, the implementation of a robust and effective cyber security approach to Defence CNS/ATM information systems design supports aviation safety. The objective of this approach is to take into account the interdependencies between aviation safety and security in order to mitigate the potential effects of cyber security threats on CNS/ATM airworthiness.

8.82 The desired cyber security outcomes for CNS/ATM systems are that:

(a) Information systems within Defence CNS/ATM systems are protected from IUEIs.

(b) Changes to the type design of in-service Defence CNS/ATM systems do not compromise protections from IUEIs.

(c) In-service management of Defence CNS/ATM systems contributes to protections from IUEIs through effective instructions for continuing airworthiness and an effective continued airworthiness management framework.

INITIAL CNS / ATM SYSTEM CERTIFICATION

8.83 **Cyber Security Requirement (Recommended).** CNS/ATM equipment, systems and networks, and their interconnections, should be protected from IUEIs that may result in adverse effects on the safety of the aircraft. CNS/ATM systems should ensure protection from IUEIs is considered during initial design. Protection should be ensured by demonstrating that the security risks have been identified, assessed and treated as necessary.

8.84 Compliance with this requirement can be demonstrated through adopting the cyber security processes defined in RTCA DO-393 Process Standard for Security Certification and Declaration of ATM ANS Ground Systems Specification dated 28 June 2022. This document guides organisations in

Superseded

the implementation of an information security framework that is consistent with aviation regulations through the following:

(a) Plan Certification/Declaration.

(b) Organization Level Information Security Objectives.

(c) Manage Risk.

(d) Information Security Incident Monitoring and Reporting.

(e) Set Claims and Collect Evidence.

(f) Verify Compliance.

8.85 Guidance material for conducting risk assessments can be found in RTCA DO-393 Process Standard for Security Certification and Declaration of ATM ANS Ground Systems Specification dated 28 June 2022. Designers should engage with the appropriate Defence cyber experts for assistance in determining the security environment, attack paths and associated level of threat.

8.86 **Cyber Security Requirement (Recommended).** Instructions for continuing airworthiness and a continued airworthiness management framework should be defined and promulgated to ensure that the security protections of the CNS/ATM equipment, systems and networks are maintained.

8.87 International good practice recognises that the management of cyber security risks extends into the operational life of CNS/ATM systems. Effective continued and continuing airworthiness programs need to be informed by the results of the security risk assessments created to support Information Security Certification / Declaration. Guidance on this requirement can be found in in RTCA DO-393 Process Standard for Security Certification and Declaration of ATM ANS Ground Systems Specification dated 28 June 2022.

CHANGES TO CNS / ATM SYSTEM DESIGN

8.88 **Cyber Security Requirement (Recommended).** Changes to the design of Defence CNS/ATM systems should ensure the ongoing protection from IUEIs, where known, that may result in adverse effects on the safety of the aircraft. Protection should be ensured by showing that the security risks have been identified, assessed and treated as necessary.

8.89 Changes to design may undermine the cyber security protections provided by the original certification, resulting in changes to cyber security hazards, their associated risks and overall cyber security posture. Accordingly, the process described in in RTCA DO-393 Process Standard for Security Certification and Declaration of ATM ANS Ground Systems Specification dated 28 June 2022 detailed in paragraph 3.2 should be followed. Designers should engage with the appropriate Defence cyber experts for assistance in determining the security environment, attack paths and associated level of threat.

8.90 **Cyber Security Requirement (Recommended).** Amendments to instructions for continuing airworthiness, and the continued airworthiness management framework should be promulgated as part of a change to type design, where necessary, to ensure that the security protections of the CNS/ATM equipment, systems and networks are maintained.

8.91 Changes to the CNS/ATM system design may require updates to the ongoing management of cyber security risks. Accordingly, the process described in in RTCA DO-393 Process Standard for Security Certification and Declaration of ATM ANS Ground Systems Specification dated 28 June 2022 detailed in paragraph 3.2.2 should be followed.

Superseded

8.92 Further guidance on implementing the ATM requirements prescribed in this chapter can be provided by the chapter sponsor.

Superseded

SECTION 6 - AERODROME DESIGN REQUIREMENTS

CHAPTER 1 - APPLICATION OF DESIGN REQUIREMENTS TO AERODROMES

APPLICATION OF DESIGN REQUIREMENTS TO AERODROMES

INTRODUCTION

1.1 Defence aerodromes are used for the arrival, departure and surface movement of both fixed wing and rotary wing aircraft. Whilst inadequate aerodrome design has no impact on aircraft airworthiness, it can have a direct and substantial impact on safe flight operations. Consequently, Defence aerodromes are an integral part of the Defence Aviation Safety Program (DASP) and are managed under the Defence Aviation Safety Regulations (DASR). Defence aims to ensure that the design of Defence aerodromes aligns with reputable standards, supplemented for the Defence context. This provides a robust basis for certification of Defence aerodromes and assists Defence in meeting WHS obligations relating to aviation safety.

STRUCTURE

1.2 This section is divided into the following chapters:

(a) Chapter 1. This chapter establishes the context to support the understanding of the aerodrome design requirements detailed in each of the remaining chapters of this section.

(b) Chapter 2. This chapter details the design requirements for land based aerodromes intended primarily for use by fixed wing aircraft.

(c) Chapter 3. This chapter details the design requirements for land based heliports.

(d) Chapter 4. This chapter details the design requirements for shipborne heliports.

BASELINE AERODROME DESIGN STANDARDS

1.3 As discussed in Section 1 Chapter 1, the Authority has recognised a suite of baseline design requirements for the safe design of Defence aircraft. The Authority follows a similar approach for Defence aerodromes, and recognises a suite of baseline aerodrome design standards that provide a sound foundation for safe flight operations of aircraft at Defence aerodromes. These baseline aerodrome design standards are prescribed by an appropriate authority that is determined to reflect international good practice, are integrated, are internally consistent and are kept up-to-date by the sponsoring authority. The baseline aerodrome design standards provide the starting point for sourcing specific aerodrome design requirements.

1.4 The baseline aerodrome design standard for land based aerodromes and land based heliports are:

(a) Land based aerodromes. The Civil Aviation Safety Authority (CASA) Part 139 (Aerodromes) Manual of Standards 2019 (MOS Part 139) (September 2019), including the MOS Part 139H -

Superseded

Standards Applicable to the Provision of Aerodrome Rescue and Fire Fighting Services (MOS Part 139H) (January 2005).

(b) Land based heliports. International Civil Aviation Organisation (ICAO) Annex 14 Aerodromes Volume 2 Heliports (July 2013, inclusive of amendments 6, 7 and 8 – Nov 2018).

1.5 Several different baseline aerodrome standards were used for shipborne heliports. These standards were selected and supplemented by the Authority, where needed, to develop the Australian Defence Force Maritime Materiel Requirements Set - DEF (AUST) 5000 - Volume 11 Ship Aviation Requirements (November 2017) for the Royal Australian Navy (RAN).

AERODROME DESIGN ELEMENTS

1.6 The baseline aerodrome standards adopted for Defence aerodrome certification comprise of a variety of design requirements and related matters, some of which are not within scope of this section. This section only provides aerodrome design requirements for physical design elements rather than design processes, maintenance requirements and operational requirements. Further, design elements are only included within this section where their design requirements form effective treatments to aerodrome-related aviation safety risks. The design elements used in this section, for both fixed wing and rotary wing operations, are listed in Annex A.

SUPPLEMENTATION OF BASELINE AERODROME DESIGN STANDARDS

1.7 Where required, the Authority varies or prescribes supplementation to the baseline design standards for specific aerodrome design elements. The variation or supplementation is made to specifically address situations where:

(a) the baseline standard is silent on specific design elements needed for Defence aerodromes, such as military-specific aerodrome design requirements.

(b) the baseline standard provides requirements for a specific aerodrome design element, but Defence experience has unequivocally demonstrated that these aerodrome design requirements need to be varied or supplemented when applied to Defence aerodromes.

(c) the baseline standard requirements need to be supplemented by mandatory Australian legislative design requirements, such as for electrical wiring.

1.8 Variation or supplementation is only made where there is no conflict with the baseline standard requirements for other design elements (given that the baseline standard comprises an integrated set of requirements).

ESSENTIAL VS RECOMMENDED DESIGN REQUIREMENTS

1.9 In the context of airworthiness design requirements, Section 1 Chapter 1 distinguishes between 'essential' and 'recommended' design requirements. While 'essential' design requirements are well defined in safety legislation and Defence policy and/or operational regulation requirements, 'recommend' design requirements represent 'good practice' that is not yet widely accepted/ implemented. In the aerodrome context, all design requirements prescribed in this section are considered to fall into the 'essential' category. Nevertheless, many of the requirements only apply in specific circumstances, so many aerodromes will never be required to contain all the design features described in the baseline aerodrome design standards. The set of applicable aerodrome design

Superseded

requirements for a given Defence aerodrome, must be agreed to by the Authority as part of an aerodrome certification program.

APPLICATION OF DESIGN REQUIREMENTS TO CERTIFIED AERODROMES

1.10 The aerodrome design requirements detailed in Chapters 2, 3 and 4 of this section apply to those Defence aerodromes which require Defence certification in accordance with DASR.139 - Aerodromes. The design requirements may be applied to other Defence aerodromes, as a treatment for those assessed risks that warrant more rigorous design requirements.

RELATIONSHIP TO OTHER SPONSORED DOCUMENTS

1.11 Whilst the following chapters in this section provide aviation safety-related aerodrome design requirements, they do not include non-aviation safety-related design requirements necessary for Defence capability, standardisation and interoperability with other defence forces.

1.12 For land based aerodromes and land based heliports, these requirements are detailed in various documents sponsored by the Directorate of Estate Engineering Policy (DEEP) within E&IG's Estate Engineering Governance and Integrity System (EEGIS). Collectively, the EEGIS documents are the repository for Defence's corporate solution to the design of land based aerodromes and land based heliports, documenting all the requirements necessary for Defence aerodromes to be operated safely and efficiently, and to allow effective force projection. For those design requirements relevant to aviation safety, the EEGIS documents refer to this section of the DASDRM.

1.13 For shipborne heliports, the non-aviation safety-related requirements are captured within the same document as the aviation safety-related aerodrome design requirements, that is, the DEF (AUST) 5000 - Volume 11 Ship Aviation Requirements (November 2017).

1.14 An aerodrome Certification Basis (CB) is required for each aerodrome requiring certification. While Defence's collective aerodrome design requirements comprise both those related to aviation safety (prescribed in this section) and those related to capability/interoperability (documented in the EEGIS), the aerodrome CB will only comprise of those design requirements necessary to demonstrate that the aerodrome can support safe flight operations; i.e. applicable requirements prescribed by the Authority in this section. Assessment of the design for the issue of an Aerodrome Certificate will only be performed against the requirements of the aerodrome CB.

ENGAGEMENT WITH DASA

1.15 The recognised baseline standards used in this section, occasionally identify a requirement to engage with designated authorities or other organisations. Where such a requirement is identified, except where expressly detailed in Chapter 2 and Chapter 3 of this section, readers are to engage with the DASA.

Annex:

A. Aerodrome Design Elements

Superseded

ANNEX A - AERODROME DESIGN ELEMENTS

AERODROME DESIGN ELEMENTS

(a) The following aerodrome design elements are used, where relevant, in Chapter 2, Chapter 3 and Chapter 4[1] of this section:

1. physical characteristics of movement facilities
2. aircraft arresting systems
3. obstacle restrictions and limitations
4. visual aids provided by aerodrome markings, markers, signals, wind direction indicators, and so on
5. visual aids provided by aerodrome lighting
6. Communication, Navigation, Surveillance (CNS) and Meteorological (MET) facilities
7. earthing points
8. light aircraft tie-down facilities
9. radio communication facilities
10. rescue fire fighting requirements.

(b) The following aerodromes design elements are outside the scope of Section 6:

1. facilities that may be on aerodromes associated with maintaining aircraft, such as hangars, corrosion control (including washes), spares storage, refuelling, ground power and de-icing
2. facilities that may be on aerodromes associated with aviation training and operations support
3. amenities on aerodromes such as accommodation and catering
4. aerodrome roads (apart from 'roadways' on aprons and emergency access roads) except to the extent that their lighting affects pilot vision.

Superseded

LAND-BASED AERODROMES

INTRODUCTION

2.1 This chapter details the design requirements for land based aerodromes primarily used by fixed wing aircraft. However, where applicable, it also contains design requirements for integrating rotary wing operations into these aerodromes.

2.2 Baseline design standards for land based aerodromes are contained in the CASA Part 139 (Aerodromes) Manual of Standards 2019 (MOS Part 139) (September 2019) and the MOS Part 139H - Standards Applicable to the Provision of Aerodrome Rescue and Fire Fighting Services (MOS Part 139H) (January 2005). Where required, the Authority varies or prescribes supplementation to the baseline design standards for specific aerodrome design elements.

2.3 Where reference is made to CASA, within both the MOS Part 139 and the MOS Part 139H, consultation should be undertaken with the DASA if there is any ambiguity, or further clarification required in implementing these requirements. No consultation or contact with CASA should occur.

2.4 Where the CASA term 'air transport operation' is used within both the MOS Part 139 and the MOS Part 139H, it is to be interpreted as follows:
Air transport operation means a passenger transport operation, a cargo transport operation or a medical transport operation.

AERODROME DESIGN REQUIREMENTS

2.5 The aerodrome design requirements and the associated variations and supplementations defined by the Authority for each of the identified design elements detailed in Chapter 1 Annex A of this section, are described below.

Design element: Physical characteristics of movement facilities

2.6 Design requirements. The design of the physical characteristics of movement facilities, such as runways, ground movement, parking and loading areas, must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 6, except for the following:

(a) *Paragraph 6.01 (6) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(b) ***Division 1 Runways – Application to emergency runways.*** *Where only one runway is available on an aerodrome used regularly by fighter jets, an emergency runway may be required. If required, this emergency runway, which must be located on a specified taxiway, must meet the following design criteria:*

1. ***Runway width.*** *The taxiway on which the emergency runway is situated, must meet at least the requirements of a code 2B runway with Outer Main Gear Wheel Span of 4.5m up to but not including 6m. That is, the minimum width must be 23m.*

Superseded

2. ***Strip width.*** *In accordance with an Aerodrome Reference Code (ARC) code number 2B non-instrument approach, the emergency runway strip must have a minimum width of 80m, centred on the taxiway.*

3. ***RESA.*** *A Runway End Safety Area (RESA) of 60m must be present at each end of the emergency runway.*

(c) ***Section 6.09 Runway surface.*** *The following variations to the MOS Part 139 (Aerodromes) requirements for runway surfaces apply:*

1. *Paragraphs 6.0.9 (2), (3) and (6) contain maintenance verification requirements rather than design requirements and are therefore not applicable to Defence aerodrome certification.*

2. *Paragraph 6.09 (5) applies to all Defence certified aerodromes.*

3. ***Surfaces near aircraft arresting systems.*** *The runway surface within 60m of an aircraft arresting system, on both the approach and departure sides, must satisfy the requirements of UFC 3-260-01 Airfield and Heliport Planning and Design, section 3-17.2.2, as they apply to USAF aerodromes.*

4. *Skid resistance for taxiways used as emergency runways must be considered during design and recorded at construction and after any major surface treatment.*

(d) *Paragraph 6.22 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(e) *Paragraph 6.25 does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(f) *Paragraph 6.26 (3) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) ***Division 4 - Application to military aprons.*** *The MOS 139 requirements for aprons do not directly account for military special-purpose aprons, namely Operational Readiness Platforms (ORP), Explosive Ordnance Loading Aprons (EOLA) and Quick Reaction Alert Facilities (QRAF). In designing new military specific aprons or modifying existing aprons, the following Defence aerodrome requirements apply. Where the Authority prescribed requirements in this section conflict with the MOS 139 requirements, the requirements below take precedence.*

1. ***Design requirements - ORP.*** *ORPs must comply with the design requirements detailed in UFC 3-260-01, 6-8, Warm-Up Pad.*

2. ***Design requirements - EOLAs.*** *EOLAs must comply with the design requirements detailed in UFC 3-260-01, 6-10 Arm/Disarm Pads. The Director of Ordnance Safety (DOS) must be consulted on defining tailoring of these requirements for a specific aerodrome.*

3. ***Design requirements - QRAF.*** *QRAFs must comply with the design requirements detailed in UFC 3-260-01, 6-13 Alert Pad.*

Superseded

Design element: Aircraft arresting systems

2.7 Where an aerodrome, to be frequently used by high-speed jet aircraft, cannot be designed to include adequate Runway End Safety Areas (RESA), an Aircraft Arresting System (AAS) is required to recover (stop) an aircraft during an emergency landing or an aborted take-off. AAS types that may be used on Defence aerodromes are:

(a) aircraft arresting barriers, which engage and absorb the forward momentum of an aircraft by means of a net; and

(b) hookcable AAS, which engage hook-equipped aircraft and absorb forward momentum by means of a cable deployed across the runway.

*2.8 **Design requirement.** The AAS design must comply with the requirements of UFC 3-260-01 Airfield and Heliport Planning and Design, section 3-17, Aircraft Arresting Systems, except for the following:*

(a) ***Paragraph 3.17.1.** The requirements applicable to USN and Marine Corps AAS are not applicable.*

(b) *AAS must be designed and sited so that they do not compromise broader MOS 139 design requirements. To avoid AAS becoming obstacles to air navigation, AAS 'huts' must be located outside the graded portion of the runway strip.*

Design element: Obstacle restrictions and limitations

*2.9 **Design requirement.** The design of obstacle restrictions and limitations must comply with the requirements of MOS Part 139 (Aerodromes) Chapter 7, except for the following:*

(a) ***Paragraph 7.01(2).** Obstacle data requirements must be obtained from AIS-AF, as the relevant Air Navigation Service Provider (ANSP).*

(b) ***Paragraph 7.02(1).** Objects or structures, other than approved visual and navigational aids or Aircraft Arrestor Systems, must not be constructed or erected within the obstacle restriction area of an aerodrome without the written approval of the Authority. When making a determination on whether objects or structures should be considered an obstacle, the Authority will seek advice from E&IG Estate Planning – Land Planning.*

(c) ***Paragraph 7.03(4) Note.** E&IG Estate Planning – Land Planning will provide advice to the Authority on development requests for buildings and other infrastructure to be built in the obstacle limitation surface of Defence aerodromes, beyond the aerodrome boundary.*

(d) *Paragraphs 7.18-25 do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Emergency runways.** Emergency runways must meet ARC code 2B non-instrument approach OLS requirements.*

Superseded

*2.10 **Design requirement.** The design of visual aids provided by aerodrome markings, markers, signals, signs, wind direction indicators and so on must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 8, except for the following:*

(a) ***Paragraph 8.27(3).** The provision of Runway Threshold Identification Lights is optional.*

(b) *Paragraph 8.29 (1)(b) and (3)(b) are not applicable to Defence aerodrome certification.*

(c) *Paragraph 8.30 (1)(a) is not applicable to Defence aerodrome certification.*

(d) ***Figure 8.31 (2)-2 through 5.** Requirements relevant to international air transport operations are not applicable to Defence aerodrome certification.*

(e) *Paragraph 8.38 Note is not applicable to Defence aerodrome certification.*

(f) *Paragraph 8.79 (4)(a) is not applicable to Defence aerodrome certification.*

(g) ***Paragraph 8.79 (7).** Consultation should occur with the relevant Military Air Operators. For a Defence Aerodrome where there is a Joint User Deed or a lease, there is also a requirement to consult with the joint user or leased operator.*

(h) *Paragraph 8.85 (1)(a) and (2)(a) are not applicable to Defence aerodrome certification.*

(i) ***Paragraph 8.93 MAGS with information.** An additional common military information sign is TACAN.*

(j) *Paragraph 8.109 (4) does not contain aerodrome design requirements and is therefore not applicable to Defence aerodrome certification.*

(k) ***Division 12 Helicopter areas on aerodromes**. The dimensions discussed in Division 12 are based on consideration of single-main-rotor helicopters. For helicopter areas designed to accommodate tandem-rotor helicopters, the design will be determined by analysis on a case-by-case basis for the specific model(s) of helicopter(s), incorporating clearances for safety, including the basic requirement for a safety area and specified protection areas. For the appropriate safety clearances for Chinook CH-47, the Type 1 parking requirements detailed in Figure 6.6 of UFC 3-260-01 (4 Feb 19) must be met.*

(l) ***Emergency runways.** An end bar and Permanent Survey Mark must be placed at each end of the emergency runway. The end bar is to be white and 0.45m thick. No other runway markings are required but additional markings may be applied if required by aerodrome stakeholders.*

(m) ***Distance to run markers.** With the exception of multi-lane runways, sealed runways are to be equipped with distance to run marker boards. As illustrated in Annex A, the markers must:*

1. *be sited on both sides of each sealed runway*
2. *indicate the runway distance remaining in thousands of feet (the last three digits being omitted)*
3. *be numbered from the upwind end of the runway, increasing towards the beginning of the runway, the figure `1' being 1 000 feet from the upwind end*
4. *be mounted vertically at right angles to the longitudinal axis of the runway and 18 m from the runway edge*

Superseded

5. *be displaced 100 feet from their true position if it coincides with a taxiway intersection (or may be omitted if the 100 feet displacement is insufficient)*

6. *be not less than 15 m from the edge of a taxiway*

7. *account for the length of the runway being other than a multiple of 1 000 feet. Half the odd length must be used at each end of the runway for computing the position of the markers. For example, runway length = 9800 feet, odd length = 800 feet, DTRM Board `1' = 1400 feet from each up wind end.*

(n) ***Distance to run marker board design.*** *Marker boards must be designed so that they:*

1. *measure 1.8 m in height and 1.2 m in width*

2. *display numbers 1.5 m in height, 0.9 m in breadth with a stroke of 13 cm*

3. *display white numbers on a black background*

4. *are of frangible construction to reduce aircraft damage should impact occur*

5. *are illuminated to ensure readability at night and in adverse weather conditions.*

(o) ***Hookcable markers.*** *On runways where hookcable AAS are installed, the position of the hookcable AAS is to be indicated by illuminated hookcable marker boards. As illustrated in Annex B, the markers must be:*

1. *placed on both sides of the runway in line with the hookcable pendant and equidistant from the runway centre line*

2. *positioned between 15 m and 23 m from the edge of the full strength pavement.*

(p) ***Hookcable marker board design.*** *The hookcable marker boards must be designed so that they:*

1. *comprise a yellow or orange disc one metre in diameter on a black background*

2. *are visible for both runway directions*

3. *are of frangible construction to reduce aircraft damage should impact occur*

4. *are illuminated to ensure readability at night and in adverse weather.*

(q) ***Hookcable runway markings.*** *On runways equipped with hookcable AAS, arresting system warning markings must be displayed on the runway at the point where the hookcable crosses the runway. The markings consist of a line of solid yellow circles 3 m in diameter located as shown at Annex C.*

(r) ***Navigation check point sign.*** *A Navigation check point sign must be installed on the approach taxiway leading onto the threshold of a runway at airfields where a navigation facility is installed. The sign is to identify itself as a 'TACAN CHECK' or 'POSITION CHECK' and provide information for the respective navigational aid. Further detail of pavement marking and sign detail is provided at Annex D.*

Superseded

2.11 ***Design requirement.*** *The design of aerodrome lighting must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 9, except for the following:*

(a) ***Paragraph 9.01 (3).*** *VASIS must be provided for all Defence certified aerodromes; however, T-VASIS and AT-VASIS are not acceptable design solutions. Double-sided PAPI should be installed, except where impractical to do so due to geometric constraints. In these situations a single-sided PAPI must be installed.*

(b) ***Paragraph 9.04 (4)(f).*** *Defence also considers taxiway routes, for operations in conditions less than 800 m, to be essential.*

(c) *Paragraph 9.06 does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(d) *Paragraph 9.07 (3)-(6) do not include design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Paragraph 9.10.*** *In addition to the MOS Part 139 (Aerodromes) defined requirements for visual aids provided by aerodrome lighting:*

1. *Where Defence aerodromes are required to provide lighting to support aircraft operating with Night Vision systems (known as Night Vision Imaging System (NVIS), Night Vision Device (NVD) or Night Vision Goggles (NVG)), the aerodrome lighting systems must satisfy compatibility requirements for the relevant Night Vision Imaging System (NVIS) Type and Class specified in use by all relevant aircraft. The aircraft systems NVIS Type and Class must align with those defined within DASDRM Section 3 Chapter 7.*

2. *The required capability for the Defence aerodrome must be defined and may be either 'Friendly' to NVIS operations or 'Covert'. Friendly is defined as 'NVD/NVG/NVIS Friendly - Lights that are specifically designed or adapted to be visible to both the unaided eye and to Night Vision Devices (NVDs), but which do not degrade, or minimally degrade, the performance of the NVDs in operational use.' Covert is defined as 'Covert - Lights that are designed to be invisible to the unaided eye but that are visible through NVDs.'*

3. *Lighting at aerodromes, that are required to be compatible with defined NVIS operations, must have controlled emissions in those visible and near infra-red regions of the spectrum that can interfere with the NVDs. Control is usually achievable by adding special filters to existing lights or by using lights with carefully controlled spectral emissions.*

4. *DASA has not yet recognised any standard or code applicable to Defence aerodromes that prescribe comprehensive NVIS design requirements. Designers must propose a standard / design requirements for Authority approval which provides a comprehensive basis for establishing the compatibility of aerodrome lighting systems with NVIS Friendly or Covert capability requirements.*

5. *While some standards may only require a ground test (or do not specify testing) to be conducted, flight test must be conducted to verify compliance with NVIS compatibility standards, particularly for helicopter NVIS operations.*

Superseded

6. *Before any solid state technology is selected for use with any lighting system on a Defence aerodrome where it represents a change from incandescent lighting technology, or a new system is being introduced (e.g. for an additional runway, taxiway or apron), including obstacle lighting on and around an aerodrome, the Aerodrome Operator and all applicable Military Air Operators must be consulted to ensure that the NVIS capability requirements (either NVIS Friendly or Covert) are established when considering:*

   i. *how the NVD will be utilised when operating from the aerodrome*

   ii. *expected visual guidance to be provided to the NVD by the aerodrome lighting system, and*

   iii. *implications of glare produced through their NVD.*

7. *Intensity settings below that of the lowest intensity setting used for normal visual guidance in accordance with MOS Part 139 (Aerodromes) may be applied to the aerodrome lighting as a whole, or any part of the aerodrome lighting, to suit the operational or training needs of any regular users of NVD at the aerodrome. For the purposes of this sub requirement, the requirements of paragraph 9.12(7) do not apply, and any 'NVD intensity setting' below the established minimum intensity setting for low intensity lighting is not to be considered as the minimum intensity for aerodrome visual lighting. Control of this 'NDV intensity setting' must be fully integrated into the aerodrome lighting control system and the details of these reduced settings and associated control must be fully documented either within the Aerodrome Manual directly, or by direct reference from the aerodrome design manual to relevant technical documentation held at the aerodrome.*

8. *Supplementary NVG/NVD/NVIS lighting applied in:*

   i. *positions that correspond with visible lighting positions, or*

   ii. *configurations that conform to operational requirements must not interfere with the configuration, operation of, or visual guidance provided by visible spectrum lighting.*

9. ***Guidance.** DEF-STAN 02-587 is the Authority prescribed standard for Shipborne Heliport aviation lighting. Whilst not developed for land based aerodromes, designers and Defence aerodrome project offices may benefit from an awareness and understanding of the documented concepts within the initial sections of the standard.*

(f) *Paragraph 9.12 (2) does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) *Paragraph 9.12 (7) may not apply as detailed in paragraph 11.e (8) above.*

(h) ***Chapter 9 Division 4 – Obstacle Lighting.** These requirements also apply to obstacles within the aerodrome's OLS, which extends outside the aerodrome. The Authority does not regulate obstacle lighting on obstacles outside the aerodrome. Where such lighting is required, the Authority will engage with Defence Estate Planning to engage with the relevant landowners. Knowledge of potential safety hazards associated with such obstacles is required for Defence to meet its statutory obligations to eliminate or otherwise minimise risks so far as is reasonably practicable.*

Superseded

(i) *Paragraph 9.31 (9)(b) does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(j) *Paragraph 9.36 does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(k) *Paragraph 9.46 T-VASIS and AT-VASIS. Given the revised requirements discussed at paragraph 11 (a) above, these requirements do not apply.*

(l) *Paragraph 9.47 Characteristics of T-VASIS Light Units. Given the revised requirements discussed at paragraph 11 (a) above, these requirements do not apply.*

(m) ***Chapter 9 Division 10 – Runway lights.*** *Runway lighting must meet the requirements in Chapter 9, Division 10, except for the following:*

1. ***Paragraph 9.51(13).*** *Replace this requirement with the following: If a runway is provided with circling guidance lights and high intensity runway lights, then the provisions of ICAO Annex 14 Volume 1 Section 5.3.6 and Part 4, Chapter 7 of the ICAO Aerodrome Design Manual (Doc 9157) must be met.*

2. ***Paragraph 9.53(1)(b).*** *Replace this requirement with the following: have a main beam that is directed towards the threshold.*

3. ***Paragraph 9.53(2).*** *Replace this requirement with the following: If circling guidance lights are used in conjunction with subsection (1), they must conform to subsection 9.51(13).*

4. ***Paragraph 9.59 (5)(e).*** *The first sentence in Note 3 does not apply.*

(n) ***Chapter 9 Division 11 – Taxiway lights.*** *Taxiway lighting must meet the requirements in Chapter 9, Division 12, except for the following:*

1. *Wherever possible, taxiway centreline lighting is preferred to taxiway edge lighting.*

2. ***Paragraph 9.78(3).*** *Replace this requirement with the following: Where additional visual cues are required to delineate apron edges at night, apron edge lighting may be provided to delineate the extremities of the apron area. Such lighting must comprise yellow lights, of no greater luminous intensity than the taxiway lights, regularly spaced at intervals not exceeding 30 m.*

3. ***Paragraph 9.88 (2).*** *For Defence aerodromes, C&SSPO must be consulted for details of the ILS critical and sensitive areas.*

4. ***Paragraph 9.93.*** *The requirements for the characteristics of apron edge lights must be met, except for the following:*

   i. *for the application of apron edge lighting only, replace paragraph 9.93(1)(c) with the following: 'show yellow'*

   ii. *for the application of apron edge lighting only, replace paragraph 9.93(1) (d) (ii) with the following: 'at all angles in azimuth necessary to provide guidance to the pilot of an aircraft on the apron'.*

(o) *Chapter 9 Division 12 – Apron Lights. Apron lighting must comply with the requirements set out in Chapter 9, Division 12, except for the following:*

Superseded

1. ***Paragraph 9.116(3)(a)(ii).*** *Replace this paragraph with the following: for vertical illuminance at a parking position with an aerodrome reference code letter - a minimum lux rating in accordance with Table 9.116 (3) for the code letter, at a height of 2 m above the apron in the relevant parking direction, along the aeroplane centreline over the entire length of the parking position.*

2. ***Paragraph 9.116(3)(b).*** *Replace this paragraph with the following: at an aircraft parking position not intended for air transport operations:*

   i. *a minimum lux rating for horizontal illuminance in accordance with Table 9.116 (3) for the code letter, with a uniformity ratio (average to minimum) of not more than 4:1*

   ii. *a minimum lux rating for vertical illuminance in accordance with Table 9.116 (3) for the code letter, at a height of 2 m above the apron in the relevant parking direction, along the aeroplane centreline over the entire length of the parking position.*

3. ***In addition to paragraph 9.116 (4)(a):*** *Verification test measurements must be taken and recorded using a grid with a maximum spacing of 5m between measuring points.*

4. ***In addition to paragraph 9.116 (4)(b):*** *Two averages must be measured, one for each of the opposing directions, using a maximum spacing of 5m between measuring points.*

5. ***In addition to paragraph 9.116 (4):*** *Add the following: (c) Vertical Illuminance Characteristics of a parking position: To confirm the characteristics of Vertical Illuminance lux levels across the entire parking position, design modelling and subsequent verification test measurements must be taken and recorded using a grid with a maximum spacing of 5m between measuring points. Two readings must be taken and recorded for each measuring point on the test grid and the two readings must be measured in the same opposing directions as detailed in MOS 139 Chapter 9, Division 12, Sub-regulation 9.116 (4)(b)(i)-(ii).*

(p) ***Paragraph 9.134 – Road and car park lighting.*** *Non aircraft guidance lighting on aerodromes or the surrounding Defence bases should be designed so that any resultant glare does not affect pilot visibility.*

(q) ***Emergency runways.*** *For emergency runways that are located on a continuous section of taxiway the:*

1. *threshold and end lights must be installed symmetrically about the runway centreline in two groups with the lights uniformly spaced in each group.*

2. *gap between the groups must be half the distance between the runway edge markings.*

Design element: Communication, Navigation, Surveillance (CNS) and Meteorological (MET) Facilities

2.12 ***Design requirement.*** *The design of CNS and MET facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 19, except for the following:*

(a) ***Paragraph 19.01 (1).*** *The assessment must be undertaken by the Defence ANSP authorised to provide services on the aerodrome.*

Superseded

(b) *Paragraph 19.01 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(c) ***Paragraphs 19.01 (3)(a) and (3)(d).*** *Advice must be sought from the Defence ANSP.*

(d) *Paragraphs 19.01 (3)(b) and (3)(c) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Paragraphs 19.01 (4)(a) and (4)(c).*** *Advice must be sought from the Defence ANSP.*

(f) *Paragraph 19.01 (4)(b) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) *Paragraph 19.05 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(h) *Paragraph 19.02 does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(i) ***Paragraphs 19.04 through 19.15.*** *The various assessments and other information should be sought from S&CSPO and the relevant Defence ANSP.*

(j) ***Paragraph 19.06 (2) Note 3.*** *The Aerodrome Operator should consult with the relevant ANSP.*

(k) ***Paragraph 19.17.*** *The assessment should be undertaken by the Bureau of Meteorology through the relevant Aerodrome Operator.*

Design element: Earthing points

2.13 ***Design requirement.*** *The design of earthing points must comply with the requirements of MOS 139 Aerodromes, Chapter 20, except for the following:*

(a) ***Paragraph 20.01 (1).*** *Ground earthing points must be installed at Defence aerodromes.*

(b) *Paragraphs 20.01 (2), (3) and (5) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(c) ***Paragraph 20.01 (4).*** *Earthing points must be marked with a white 45 cm diameter circle that includes the date of the next scheduled test. The white circle is to be enclosed by a 5 cm black ring.*

Design element: Light aircraft tie-down facilities

2.14 ***Design requirement.*** *The design of light aircraft tie-down facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 21.*

Design element: Radio Communication Facilities

2.15 ***Design requirement.*** *The design of radio communication facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 22, except for the following:*

(a) *Paragraphs 22.01(2)-(3) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

Superseded

(b) *Paragraphs 22.01 (6)-(8) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

Design element: Aerodromes Rescue and Fire Fighting Services

2.16 ***Design requirement.*** *The design of the facilities used in Aerodrome Rescue and Fire Fighting Services (ARFFS) must comply with the following MOS Part 139H requirements:*

(a) *Chapter 6, paragraph 6.1.3 Emergency Access Roads.*

(b) ***Facility sizing.*** *Each Defence aerodrome must store sufficient stocks of extinguishing agent and supply water to satisfy the performance criteria in Chapter 7. The facility must accommodate the required number of fire fighting vehicles and personnel to satisfy the requirements in Chapter 2 and Chapter 20.*

(c) *Chapter 22 ARFFS Facilities, except for the following:*

1. ***Paragraph 22.1.1.2.*** *Replace this paragraph with the following: The siting of a fire station facility must take into consideration the requirement of achieving the response times as defined in Chapter 6.*

2. ***Paragraph 22.1.1.3.*** *Replace this paragraph with the following: Fire stations must provide a Fire Station Communications Centre where all landings and take-offs of air transport aircraft are observed so as not to delay response times.*

3. *Paragraphs 22.1.2.7-8 do not contain facilities design requirements and are therefore not applicable to Defence aerodrome certification.*

4. *Paragraphs 22.1.4-8 do not contain facilities design requirements and are therefore not applicable to Defence aerodrome certification.*

(d) *Guidance on the design of fire stations is provided in the ICAO Airport Services Manual (Doc. 9137) Part 1 Chapter 9.*

Annexes:

A. Distance to Run Marker Siting

B. Hookcable Marker Siting

C. Hookcable Runway Markings

D. Navigation Check Point Markings

Superseded

INTRODUCTION

APPLICATION OF DESIGN REQUIREMENTS TO AERODROMES

INTRODUCTION

1.1 Defence aerodromes are used for the arrival, departure and surface movement of both fixed wing and rotary wing aircraft. Whilst inadequate aerodrome design has no impact on aircraft airworthiness, it can have a direct and substantial impact on safe flight operations. Consequently, Defence aerodromes are an integral part of the Defence Aviation Safety Program (DASP) and are managed under the Defence Aviation Safety Regulations (DASR). Defence aims to ensure that the design of Defence aerodromes aligns with reputable standards, supplemented for the Defence context. This provides a robust basis for certification of Defence aerodromes and assists Defence in meeting WHS obligations relating to aviation safety.

STRUCTURE

1.2 This section is divided into the following chapters:

(a) Chapter 1. This chapter establishes the context to support the understanding of the aerodrome design requirements detailed in each of the remaining chapters of this section.

(b) Chapter 2. This chapter details the design requirements for land based aerodromes intended primarily for use by fixed wing aircraft.

(c) Chapter 3. This chapter details the design requirements for land based heliports.

(d) Chapter 4. This chapter details the design requirements for shipborne heliports.

BASELINE AERODROME DESIGN STANDARDS

1.3 As discussed in Section 1 Chapter 1, the Authority has recognised a suite of baseline design requirements for the safe design of Defence aircraft. The Authority follows a similar approach for Defence aerodromes, and recognises a suite of baseline aerodrome design standards that provide a sound foundation for safe flight operations of aircraft at Defence aerodromes. These baseline aerodrome design standards are prescribed by an appropriate authority that is determined to reflect international good practice, are integrated, are internally consistent and are kept up-to-date by the sponsoring authority. The baseline aerodrome design standards provide the starting point for sourcing specific aerodrome design requirements.

1.4 The baseline aerodrome design standard for land based aerodromes and land based heliports are:

(a) Land based aerodromes. The Civil Aviation Safety Authority (CASA) Part 139 (Aerodromes) Manual of Standards 2019 (MOS Part 139) (September 2019), including the MOS Part 139H - Standards Applicable to the Provision of Aerodrome Rescue and Fire Fighting Services (MOS Part 139H) (January 2005).

Superseded

(b) Land based heliports. International Civil Aviation Organisation (ICAO) Annex 14 Aerodromes Volume 2 Heliports (July 2013, inclusive of amendments 6, 7 and 8 – Nov 2018).

1.5 Several different baseline aerodrome standards were used for shipborne heliports. These standards were selected and supplemented by the Authority, where needed, to develop the Australian Defence Force Maritime Materiel Requirements Set - DEF (AUST) 5000 - Volume 11 Ship Aviation Requirements (November 2017) for the Royal Australian Navy (RAN).

AERODROME DESIGN ELEMENTS

1.6 The baseline aerodrome standards adopted for Defence aerodrome certification comprise of a variety of design requirements and related matters, some of which are not within scope of this section. This section only provides aerodrome design requirements for physical design elements rather than design processes, maintenance requirements and operational requirements. Further, design elements are only included within this section where their design requirements form effective treatments to aerodrome-related aviation safety risks. The design elements used in this section, for both fixed wing and rotary wing operations, are listed in Annex A.

SUPPLEMENTATION OF BASELINE AERODROME DESIGN STANDARDS

1.7 Where required, the Authority varies or prescribes supplementation to the baseline design standards for specific aerodrome design elements. The variation or supplementation is made to specifically address situations where:

(a) the baseline standard is silent on specific design elements needed for Defence aerodromes, such as military-specific aerodrome design requirements.

(b) the baseline standard provides requirements for a specific aerodrome design element, but Defence experience has unequivocally demonstrated that these aerodrome design requirements need to be varied or supplemented when applied to Defence aerodromes.

(c) the baseline standard requirements need to be supplemented by mandatory Australian legislative design requirements, such as for electrical wiring.

1.8 Variation or supplementation is only made where there is no conflict with the baseline standard requirements for other design elements (given that the baseline standard comprises an integrated set of requirements).

ESSENTIAL VS RECOMMENDED DESIGN REQUIREMENTS

1.9 In the context of airworthiness design requirements, Section 1 Chapter 1 distinguishes between 'essential' and 'recommended' design requirements. While 'essential' design requirements are well defined in safety legislation and Defence policy and/or operational regulation requirements, 'recommend' design requirements represent 'good practice' that is not yet widely accepted/ implemented. In the aerodrome context, all design requirements prescribed in this section are considered to fall into the 'essential' category. Nevertheless, many of the requirements only apply in specific circumstances, so many aerodromes will never be required to contain all the design features described in the baseline aerodrome design standards. The set of applicable aerodrome design requirements for a given Defence aerodrome, must be agreed to by the Authority as part of an aerodrome certification program.

Superseded

APPLICATION OF DESIGN REQUIREMENTS TO CERTIFIED AERODROMES

1.10 The aerodrome design requirements detailed in Chapters 2, 3 and 4 of this section apply to those Defence aerodromes which require Defence certification in accordance with DASR.139 - Aerodromes. The design requirements may be applied to other Defence aerodromes, as a treatment for those assessed risks that warrant more rigorous design requirements.

RELATIONSHIP TO OTHER SPONSORED DOCUMENTS

1.11 Whilst the following chapters in this section provide aviation safety-related aerodrome design requirements, they do not include non-aviation safety-related design requirements necessary for Defence capability, standardisation and interoperability with other defence forces.

1.12 For land based aerodromes and land based heliports, these requirements are detailed in various documents sponsored by the Directorate of Estate Engineering Policy (DEEP) within E&IG's Estate Engineering Governance and Integrity System (EEGIS). Collectively, the EEGIS documents are the repository for Defence's corporate solution to the design of land based aerodromes and land based heliports, documenting all the requirements necessary for Defence aerodromes to be operated safely and efficiently, and to allow effective force projection. For those design requirements relevant to aviation safety, the EEGIS documents refer to this section of the DASDRM.

1.13 For shipborne heliports, the non-aviation safety-related requirements are captured within the same document as the aviation safety-related aerodrome design requirements, that is, the DEF (AUST) 5000 - Volume 11 Ship Aviation Requirements (November 2017).

1.14 An aerodrome Certification Basis (CB) is required for each aerodrome requiring certification. While Defence's collective aerodrome design requirements comprise both those related to aviation safety (prescribed in this section) and those related to capability/interoperability (documented in the EEGIS), the aerodrome CB will only comprise of those design requirements necessary to demonstrate that the aerodrome can support safe flight operations; i.e. applicable requirements prescribed by the Authority in this section. Assessment of the design for the issue of an Aerodrome Certificate will only be performed against the requirements of the aerodrome CB.

ENGAGEMENT WITH DASA

1.15 The recognised baseline standards used in this section, occasionally identify a requirement to engage with designated authorities or other organisations. Where such a requirement is identified, except where expressly detailed in Chapter 2 and Chapter 3 of this section, readers are to engage with the DASA.

Annex:

A. Aerodrome Design Elements

Superseded

AERODROME DESIGN REQUIREMENTS

LAND-BASED AERODROMES

INTRODUCTION

2.1 This chapter details the design requirements for land based aerodromes primarily used by fixed wing aircraft. However, where applicable, it also contains design requirements for integrating rotary wing operations into these aerodromes.

2.2 Baseline design standards for land based aerodromes are contained in the CASA Part 139 (Aerodromes) Manual of Standards 2019 (MOS Part 139) (September 2019) and the MOS Part 139H - Standards Applicable to the Provision of Aerodrome Rescue and Fire Fighting Services (MOS Part 139H) (January 2005). Where required, the Authority varies or prescribes supplementation to the baseline design standards for specific aerodrome design elements.

2.3 Where reference is made to CASA, within both the MOS Part 139 and the MOS Part 139H, consultation should be undertaken with the DASA if there is any ambiguity, or further clarification required in implementing these requirements. No consultation or contact with CASA should occur.

2.4 Where the CASA term 'air transport operation' is used within both the MOS Part 139 and the MOS Part 139H, it is to be interpreted as follows:
Air transport operation means a passenger transport operation, a cargo transport operation or a medical transport operation.

AERODROME DESIGN REQUIREMENTS

2.5 The aerodrome design requirements and the associated variations and supplementations defined by the Authority for each of the identified design elements detailed in Chapter 1 Annex A of this section, are described below.

Design element: Physical characteristics of movement facilities

2.6 Design requirements. The design of the physical characteristics of movement facilities, such as runways, ground movement, parking and loading areas, must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 6, except for the following:

(a) *Paragraph 6.01 (6) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(b) ***Division 1 Runways – Application to emergency runways.*** *Where only one runway is available on an aerodrome used regularly by fighter jets, an emergency runway may be required. If required, this emergency runway, which must be located on a specified taxiway, must meet the following design criteria:*

1. ***Runway width.*** *The taxiway on which the emergency runway is situated, must meet at least the requirements of a code 2B runway with Outer Main Gear Wheel Span of 4.5m up to but not including 6m. That is, the minimum width must be 23m.*

Superseded

2. ***Strip width.*** *In accordance with an Aerodrome Reference Code (ARC) code number 2B non-instrument approach, the emergency runway strip must have a minimum width of 80m, centred on the taxiway.*

3. ***RESA.*** *A Runway End Safety Area (RESA) of 60m must be present at each end of the emergency runway.*

(c) ***Section 6.09 Runway surface.*** *The following variations to the MOS Part 139 (Aerodromes) requirements for runway surfaces apply:*

1. *Paragraphs 6.0.9 (2), (3) and (6) contain maintenance verification requirements rather than design requirements and are therefore not applicable to Defence aerodrome certification.*

2. *Paragraph 6.09 (5) applies to all Defence certified aerodromes.*

3. ***Surfaces near aircraft arresting systems.*** *The runway surface within 60m of an aircraft arresting system, on both the approach and departure sides, must satisfy the requirements of UFC 3-260-01 Airfield and Heliport Planning and Design, section 3-17.2.2, as they apply to USAF aerodromes.*

4. *Skid resistance for taxiways used as emergency runways must be considered during design and recorded at construction and after any major surface treatment.*

(d) *Paragraph 6.22 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(e) *Paragraph 6.25 does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(f) *Paragraph 6.26 (3) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) ***Division 4 - Application to military aprons.*** *The MOS 139 requirements for aprons do not directly account for military special-purpose aprons, namely Operational Readiness Platforms (ORP), Explosive Ordnance Loading Aprons (EOLA) and Quick Reaction Alert Facilities (QRAF). In designing new military specific aprons or modifying existing aprons, the following Defence aerodrome requirements apply. Where the Authority prescribed requirements in this section conflict with the MOS 139 requirements, the requirements below take precedence.*

1. ***Design requirements - ORP.*** *ORPs must comply with the design requirements detailed in UFC 3-260-01, 6-8, Warm-Up Pad.*

2. ***Design requirements - EOLAs.*** *EOLAs must comply with the design requirements detailed in UFC 3-260-01, 6-10 Arm/Disarm Pads. The Director of Ordnance Safety (DOS) must be consulted on defining tailoring of these requirements for a specific aerodrome.*

3. ***Design requirements - QRAF.*** *QRAFs must comply with the design requirements detailed in UFC 3-260-01, 6-13 Alert Pad.*

Design element: Aircraft arresting systems

2.7 Where an aerodrome, to be frequently used by high-speed jet aircraft, cannot be designed to include adequate Runway End Safety Areas (RESA), an Aircraft Arresting System (AAS) is required to

Superseded

recover (stop) an aircraft during an emergency landing or an aborted take-off. AAS types that may be used on Defence aerodromes are:

(a) aircraft arresting barriers, which engage and absorb the forward momentum of an aircraft by means of a net; and

(b) hookcable AAS, which engage hook-equipped aircraft and absorb forward momentum by means of a cable deployed across the runway.

2.8 ***Design requirement.*** *The AAS design must comply with the requirements of UFC 3-260-01 Airfield and Heliport Planning and Design, section 3-17, Aircraft Arresting Systems, except for the following:*

(a) ***Paragraph 3.17.1.*** *The requirements applicable to USN and Marine Corps AAS are not applicable.*

(b) *AAS must be designed and sited so that they do not compromise broader MOS 139 design requirements. To avoid AAS becoming obstacles to air navigation, AAS 'huts' must be located outside the graded portion of the runway strip.*

Design element: Obstacle restrictions and limitations

2.9 ***Design requirement.*** *The design of obstacle restrictions and limitations must comply with the requirements of MOS Part 139 (Aerodromes) Chapter 7, except for the following:*

(a) ***Paragraph 7.01(2).*** *Obstacle data requirements must be obtained from AIS-AF, as the relevant Air Navigation Service Provider (ANSP).*

(b) ***Paragraph 7.02(1).*** *Objects or structures, other than approved visual and navigational aids or Aircraft Arrestor Systems, must not be constructed or erected within the obstacle restriction area of an aerodrome without the written approval of the Authority. When making a determination on whether objects or structures should be considered an obstacle, the Authority will seek advice from E&IG Estate Planning – Land Planning.*

(c) ***Paragraph 7.03(4) Note.*** *E&IG Estate Planning – Land Planning will provide advice to the Authority on development requests for buildings and other infrastructure to be built in the obstacle limitation surface of Defence aerodromes, beyond the aerodrome boundary.*

(d) *Paragraphs 7.18-25 do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Emergency runways.*** *Emergency runways must meet ARC code 2B non-instrument approach OLS requirements.*

Design element: Visual Aids Provided by Aerodrome Markings, Markers, Signals, Signs, Wind Direction Indicators, and so on

2.10 ***Design requirement.*** *The design of visual aids provided by aerodrome markings, markers, signals, signs, wind direction indicators and so on must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 8, except for the following:*

(a) ***Paragraph 8.27(3).*** *The provision of Runway Threshold Identification Lights is optional.*

(b) *Paragraph 8.29 (1)(b) and (3)(b) are not applicable to Defence aerodrome certification.*

(c) *Paragraph 8.30 (1)(a) is not applicable to Defence aerodrome certification.*

Superseded

(d) ***Figure 8.31 (2)-2 through 5.*** *Requirements relevant to international air transport operations are not applicable to Defence aerodrome certification.*

(e) *Paragraph 8.38 Note is not applicable to Defence aerodrome certification.*

(f) *Paragraph 8.79 (4)(a) is not applicable to Defence aerodrome certification.*

(g) ***Paragraph 8.79 (7).*** *Consultation should occur with the relevant Military Air Operators. For a Defence Aerodrome where there is a Joint User Deed or a lease, there is also a requirement to consult with the joint user or leased operator.*

(h) *Paragraph 8.85 (1)(a) and (2)(a) are not applicable to Defence aerodrome certification.*

(i) ***Paragraph 8.93 MAGS with information.*** *An additional common military information sign is TACAN.*

(j) *Paragraph 8.109 (4) does not contain aerodrome design requirements and is therefore not applicable to Defence aerodrome certification.*

(k) ***Division 12 Helicopter areas on aerodromes****. The dimensions discussed in Division 12 are based on consideration of single-main-rotor helicopters. For helicopter areas designed to accommodate tandem-rotor helicopters, the design will be determined by analysis on a case-by-case basis for the specific model(s) of helicopter(s), incorporating clearances for safety, including the basic requirement for a safety area and specified protection areas. For the appropriate safety clearances for Chinook CH-47, the Type 1 parking requirements detailed in Figure 6.6 of UFC 3-260-01 (4 Feb 19) must be met.*

(l) ***Emergency runways.*** *An end bar and Permanent Survey Mark must be placed at each end of the emergency runway. The end bar is to be white and 0.45m thick. No other runway markings are required but additional markings may be applied if required by aerodrome stakeholders.*

(m) ***Distance to run markers.*** *With the exception of multi-lane runways, sealed runways are to be equipped with distance to run marker boards. As illustrated in Annex A, the markers must:*

1. *be sited on both sides of each sealed runway*
2. *indicate the runway distance remaining in thousands of feet (the last three digits being omitted)*
3. *be numbered from the upwind end of the runway, increasing towards the beginning of the runway, the figure `1' being 1 000 feet from the upwind end*
4. *be mounted vertically at right angles to the longitudinal axis of the runway and 18 m from the runway edge*
5. *be displaced 100 feet from their true position if it coincides with a taxiway intersection (or may be omitted if the 100 feet displacement is insufficient)*
6. *be not less than 15 m from the edge of a taxiway*
7. *account for the length of the runway being other than a multiple of 1 000 feet. Half the odd length must be used at each end of the runway for computing the position of the markers. For example, runway length = 9800 feet, odd length = 800 feet, DTRM Board `1' = 1400 feet from each up wind end.*

(n) ***Distance to run marker board design.*** *Marker boards must be designed so that they:*

Superseded

1. *measure 1.8 m in height and 1.2 m in width*

2. *display numbers 1.5 m in height, 0.9 m in breadth with a stroke of 13 cm*

3. *display white numbers on a black background*

4. *are of frangible construction to reduce aircraft damage should impact occur*

5. *are illuminated to ensure readability at night and in adverse weather conditions.*

(o) ***Hookcable markers.*** *On runways where hookcable AAS are installed, the position of the hookcable AAS is to be indicated by illuminated hookcable marker boards. As illustrated in Annex B, the markers must be:*

1. *placed on both sides of the runway in line with the hookcable pendant and equidistant from the runway centre line*

2. *positioned between 15 m and 23 m from the edge of the full strength pavement.*

(p) ***Hookcable marker board design.*** *The hookcable marker boards must be designed so that they:*

1. *comprise a yellow or orange disc one metre in diameter on a black background*

2. *are visible for both runway directions*

3. *are of frangible construction to reduce aircraft damage should impact occur*

4. *are illuminated to ensure readability at night and in adverse weather.*

(q) ***Hookcable runway markings.*** *On runways equipped with hookcable AAS, arresting system warning markings must be displayed on the runway at the point where the hookcable crosses the runway. The markings consist of a line of solid yellow circles 3 m in diameter located as shown at Annex C.*

(r) ***Navigation check point sign.*** *A Navigation check point sign must be installed on the approach taxiway leading onto the threshold of a runway at airfields where a navigation facility is installed. The sign is to identify itself as a 'TACAN CHECK' or 'POSITION CHECK' and provide information for the respective navigational aid. Further detail of pavement marking and sign detail is provided at Annex D.*

Design element: Visual aids provided by aerodrome lighting

2.11 ***Design requirement.*** *The design of aerodrome lighting must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 9, except for the following:*

(a) ***Paragraph 9.01 (3).*** *VASIS must be provided for all Defence certified aerodromes; however, T-VASIS and AT-VASIS are not acceptable design solutions. Double-sided PAPI should be installed, except where impractical to do so due to geometric constraints. In these situations a single-sided PAPI must be installed.*

(b) ***Paragraph 9.04 (4)(f).*** *Defence also considers taxiway routes, for operations in conditions less than 800 m, to be essential.*

(c) *Paragraph 9.06 does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

Superseded

(d) *Paragraph 9.07 (3)-(6) do not include design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Paragraph 9.10.*** *In addition to the MOS Part 139 (Aerodromes) defined requirements for visual aids provided by aerodrome lighting:*

1. *Where Defence aerodromes are required to provide lighting to support aircraft operating with Night Vision systems (known as Night Vision Imaging System (NVIS), Night Vision Device (NVD) or Night Vision Goggles (NVG)), the aerodrome lighting systems must satisfy compatibility requirements for the relevant Night Vision Imaging System (NVIS) Type and Class specified in use by all relevant aircraft. The aircraft systems NVIS Type and Class must align with those defined within DASDRM Section 3 Chapter 7.*

2. *The required capability for the Defence aerodrome must be defined and may be either 'Friendly' to NVIS operations or 'Covert'. Friendly is defined as 'NVD/NVG/NVIS Friendly - Lights that are specifically designed or adapted to be visible to both the unaided eye and to Night Vision Devices (NVDs), but which do not degrade, or minimally degrade, the performance of the NVDs in operational use.' Covert is defined as 'Covert - Lights that are designed to be invisible to the unaided eye but that are visible through NVDs.'*

3. *Lighting at aerodromes, that are required to be compatible with defined NVIS operations, must have controlled emissions in those visible and near infra-red regions of the spectrum that can interfere with the NVDs. Control is usually achievable by adding special filters to existing lights or by using lights with carefully controlled spectral emissions.*

4. *DASA has not yet recognised any standard or code applicable to Defence aerodromes that prescribe comprehensive NVIS design requirements. Designers must propose a standard / design requirements for Authority approval which provides a comprehensive basis for establishing the compatibility of aerodrome lighting systems with NVIS Friendly or Covert capability requirements.*

5. *While some standards may only require a ground test (or do not specify testing) to be conducted, flight test must be conducted to verify compliance with NVIS compatibility standards, particularly for helicopter NVIS operations.*

6. *Before any solid state technology is selected for use with any lighting system on a Defence aerodrome where it represents a change from incandescent lighting technology, or a new system is being introduced (e.g. for an additional runway, taxiway or apron), including obstacle lighting on and around an aerodrome, the Aerodrome Operator and all applicable Military Air Operators must be consulted to ensure that the NVIS capability requirements (either NVIS Friendly or Covert) are established when considering:*

   i. *how the NVD will be utilised when operating from the aerodrome*

   ii. *expected visual guidance to be provided to the NVD by the aerodrome lighting system, and*

   iii. *implications of glare produced through their NVD.*

7. *Intensity settings below that of the lowest intensity setting used for normal visual guidance in accordance with MOS Part 139 (Aerodromes) may be applied to the aerodrome lighting as a whole, or any part of the aerodrome lighting, to suit the*

Superseded

operational or training needs of any regular users of NVD at the aerodrome. For the purposes of this sub requirement, the requirements of paragraph 9.12(7) do not apply, and any 'NVD intensity setting' below the established minimum intensity setting for low intensity lighting is not to be considered as the minimum intensity for aerodrome visual lighting. Control of this 'NDV intensity setting' must be fully integrated into the aerodrome lighting control system and the details of these reduced settings and associated control must be fully documented either within the Aerodrome Manual directly, or by direct reference from the aerodrome design manual to relevant technical documentation held at the aerodrome.

8. *Supplementary NVG/NVD/NVIS lighting applied in:*

   i. *positions that correspond with visible lighting positions, or*

   ii. *configurations that conform to operational requirements must not interfere with the configuration, operation of, or visual guidance provided by visible spectrum lighting.*

9. ***Guidance.*** *DEF-STAN 02-587 is the Authority prescribed standard for Shipborne Heliport aviation lighting. Whilst not developed for land based aerodromes, designers and Defence aerodrome project offices may benefit from an awareness and understanding of the documented concepts within the initial sections of the standard.*

(f) *Paragraph 9.12 (2) does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) *Paragraph 9.12 (7) may not apply as detailed in paragraph 11.e (8) above.*

(h) ***Chapter 9 Division 4 – Obstacle Lighting.*** *These requirements also apply to obstacles within the aerodrome's OLS, which extends outside the aerodrome. The Authority does not regulate obstacle lighting on obstacles outside the aerodrome. Where such lighting is required, the Authority will engage with Defence Estate Planning to engage with the relevant landowners. Knowledge of potential safety hazards associated with such obstacles is required for Defence to meet its statutory obligations to eliminate or otherwise minimise risks so far as is reasonably practicable.*

(i) *Paragraph 9.31 (9)(b) does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(j) *Paragraph 9.36 does not include design requirements and is therefore not applicable to Defence aerodrome certification.*

(k) *Paragraph 9.46 T-VASIS and AT-VASIS. Given the revised requirements discussed at paragraph 11 (a) above, these requirements do not apply.*

(l) *Paragraph 9.47 Characteristics of T-VASIS Light Units. Given the revised requirements discussed at paragraph 11 (a) above, these requirements do not apply.*

(m) ***Chapter 9 Division 10 – Runway lights.*** *Runway lighting must meet the requirements in Chapter 9, Division 10, except for the following:*

1. ***Paragraph 9.51(13).*** *Replace this requirement with the following: If a runway is provided with circling guidance lights and high intensity runway lights, then the provisions of ICAO Annex 14 Volume 1 Section 5.3.6 and Part 4, Chapter 7 of the ICAO Aerodrome Design Manual (Doc 9157) must be met.*

Superseded

2. ***Paragraph 9.53(1)(b).*** *Replace this requirement with the following: have a main beam that is directed towards the threshold.*

3. ***Paragraph 9.53(2).*** *Replace this requirement with the following: If circling guidance lights are used in conjunction with subsection (1), they must conform to subsection 9.51(13).*

4. ***Paragraph 9.59 (5)(e).*** *The first sentence in Note 3 does not apply.*

(n) ***Chapter 9 Division 11 – Taxiway lights.*** *Taxiway lighting must meet the requirements in Chapter 9, Division 12, except for the following:*

1. *Wherever possible, taxiway centreline lighting is preferred to taxiway edge lighting.*

2. ***Paragraph 9.78(3).*** *Replace this requirement with the following: Where additional visual cues are required to delineate apron edges at night, apron edge lighting may be provided to delineate the extremities of the apron area. Such lighting must comprise yellow lights, of no greater luminous intensity than the taxiway lights, regularly spaced at intervals not exceeding 30 m.*

3. ***Paragraph 9.88 (2).*** *For Defence aerodromes, C&SSPO must be consulted for details of the ILS critical and sensitive areas.*

4. ***Paragraph 9.93.*** *The requirements for the characteristics of apron edge lights must be met, except for the following:*

   i. *for the application of apron edge lighting only, replace paragraph 9.93(1)(c) with the following: 'show yellow'*

   ii. *for the application of apron edge lighting only, replace paragraph 9.93(1) (d) (ii) with the following: 'at all angles in azimuth necessary to provide guidance to the pilot of an aircraft on the apron'.*

(o) *Chapter 9 Division 12 – Apron Lights. Apron lighting must comply with the requirements set out in Chapter 9, Division 12, except for the following:*

1. ***Paragraph 9.116(3)(a)(ii).*** *Replace this paragraph with the following: for vertical illuminance at a parking position with an aerodrome reference code letter - a minimum lux rating in accordance with Table 9.116 (3) for the code letter, at a height of 2 m above the apron in the relevant parking direction, along the aeroplane centreline over the entire length of the parking position.*

2. ***Paragraph 9.116(3)(b).*** *Replace this paragraph with the following: at an aircraft parking position not intended for air transport operations:*

   i. *a minimum lux rating for horizontal illuminance in accordance with Table 9.116 (3) for the code letter, with a uniformity ratio (average to minimum) of not more than 4:1*

   ii. *a minimum lux rating for vertical illuminance in accordance with Table 9.116 (3) for the code letter, at a height of 2 m above the apron in the relevant parking direction, along the aeroplane centreline over the entire length of the parking position.*

3. ***In addition to paragraph 9.116 (4)(a):*** *Verification test measurements must be taken and recorded using a grid with a maximum spacing of 5m between measuring points.*

Superseded

4. ***In addition to paragraph 9.116 (4)(b):*** *Two averages must be measured, one for each of the opposing directions, using a maximum spacing of 5m between measuring points.*

5. ***In addition to paragraph 9.116 (4):*** *Add the following: (c) Vertical Illuminance Characteristics of a parking position: To confirm the characteristics of Vertical Illuminance lux levels across the entire parking position, design modelling and subsequent verification test measurements must be taken and recorded using a grid with a maximum spacing of 5m between measuring points. Two readings must be taken and recorded for each measuring point on the test grid and the two readings must be measured in the same opposing directions as detailed in MOS 139 Chapter 9, Division 12, Sub-regulation 9.116 (4)(b)(i)-(ii).*

(p) ***Paragraph 9.134 – Road and car park lighting.*** *Non aircraft guidance lighting on aerodromes or the surrounding Defence bases should be designed so that any resultant glare does not affect pilot visibility.*

(q) ***Emergency runways.*** *For emergency runways that are located on a continuous section of taxiway the:*

1. *threshold and end lights must be installed symmetrically about the runway centreline in two groups with the lights uniformly spaced in each group.*

2. *gap between the groups must be half the distance between the runway edge markings.*

Design element: Communication, Navigation, Surveillance (CNS) and Meteorological (MET) Facilities

2.12 ***Design requirement.*** *The design of CNS and MET facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 19, except for the following:*

(a) ***Paragraph 19.01 (1).*** *The assessment must be undertaken by the Defence ANSP authorised to provide services on the aerodrome.*

(b) *Paragraph 19.01 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(c) ***Paragraphs 19.01 (3)(a) and (3)(d).*** *Advice must be sought from the Defence ANSP.*

(d) *Paragraphs 19.01 (3)(b) and (3)(c) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(e) ***Paragraphs 19.01 (4)(a) and (4)(c).*** *Advice must be sought from the Defence ANSP.*

(f) *Paragraph 19.01 (4)(b) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(g) *Paragraph 19.05 (2) does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(h) *Paragraph 19.02 does not contain design requirements and is therefore not applicable to Defence aerodrome certification.*

(i) ***Paragraphs 19.04 through 19.15.*** *The various assessments and other information should be sought from S&CSPO and the relevant Defence ANSP.*

(j) ***Paragraph 19.06 (2) Note 3.*** *The Aerodrome Operator should consult with the relevant ANSP.*

Superseded

(k) ***Paragraph 19.17.*** *The assessment should be undertaken by the Bureau of Meteorology through the relevant Aerodrome Operator.*

Design element: Earthing points

2.13 ***Design requirement.*** *The design of earthing points must comply with the requirements of MOS 139 Aerodromes, Chapter 20, except for the following:*

(a) ***Paragraph 20.01 (1).*** *Ground earthing points must be installed at Defence aerodromes.*

(b) *Paragraphs 20.01 (2), (3) and (5) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(c) ***Paragraph 20.01 (4).*** *Earthing points must be marked with a white 45 cm diameter circle that includes the date of the next scheduled test. The white circle is to be enclosed by a 5 cm black ring.*

Design element: Light aircraft tie-down facilities

2.14 ***Design requirement.*** *The design of light aircraft tie-down facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 21.*

Design element: Radio Communication Facilities

2.15 ***Design requirement.*** *The design of radio communication facilities must comply with the requirements of MOS Part 139 (Aerodromes), Chapter 22, except for the following:*

(a) *Paragraphs 22.01(2)-(3) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

(b) *Paragraphs 22.01 (6)-(8) do not contain design requirements and are therefore not applicable to Defence aerodrome certification.*

Design element: Aerodromes Rescue and Fire Fighting Services

2.16 ***Design requirement.*** *The design of the facilities used in Aerodrome Rescue and Fire Fighting Services (ARFFS) must comply with the following MOS Part 139H requirements:*

(a) *Chapter 6, paragraph 6.1.3 Emergency Access Roads.*

(b) ***Facility sizing.*** *Each Defence aerodrome must store sufficient stocks of extinguishing agent and supply water to satisfy the performance criteria in Chapter 7. The facility must accommodate the required number of fire fighting vehicles and personnel to satisfy the requirements in Chapter 2 and Chapter 20.*

(c) *Chapter 22 ARFFS Facilities, except for the following:*

1. ***Paragraph 22.1.1.2.*** *Replace this paragraph with the following: The siting of a fire station facility must take into consideration the requirement of achieving the response times as defined in Chapter 6.*

2. ***Paragraph 22.1.1.3.*** *Replace this paragraph with the following: Fire stations must provide a Fire Station Communications Centre where all landings and take-offs of air transport aircraft are observed so as not to delay response times.*

3. *Paragraphs 22.1.2.7-8 do not contain facilities design requirements and are therefore not applicable to Defence aerodrome certification.*

Superseded

4. *Paragraphs 22.1.4-8 do not contain facilities design requirements and are therefore not applicable to Defence aerodrome certification.*

(d) *Guidance on the design of fire stations is provided in the ICAO Airport Services Manual (Doc. 9137) Part 1 Chapter 9.*

Annexes:

A. Distance to Run Marker Siting

B. Hookcable Marker Siting

C. Hookcable Runway Markings

D. Navigation Check Point Markings

Superseded

ANNEXES

ANNEX A - DISTANCE TO RUN MARKER SITING

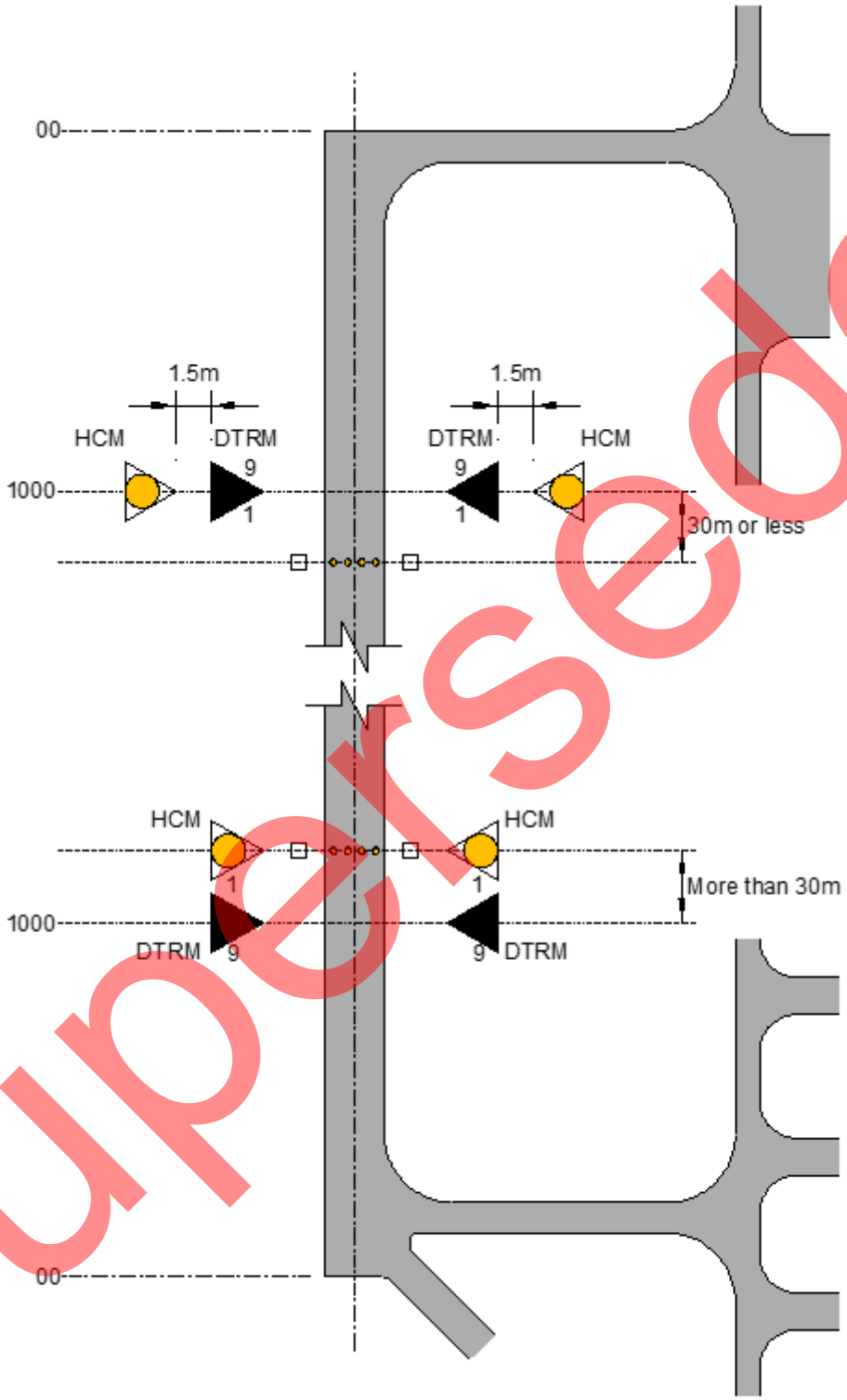
Superseded

DISTANCE TO RUN MARKER SITING

Superseded

ANNEX B - HOOKCABLE MARKER SITING

HOOKCABLE MARKER SITING



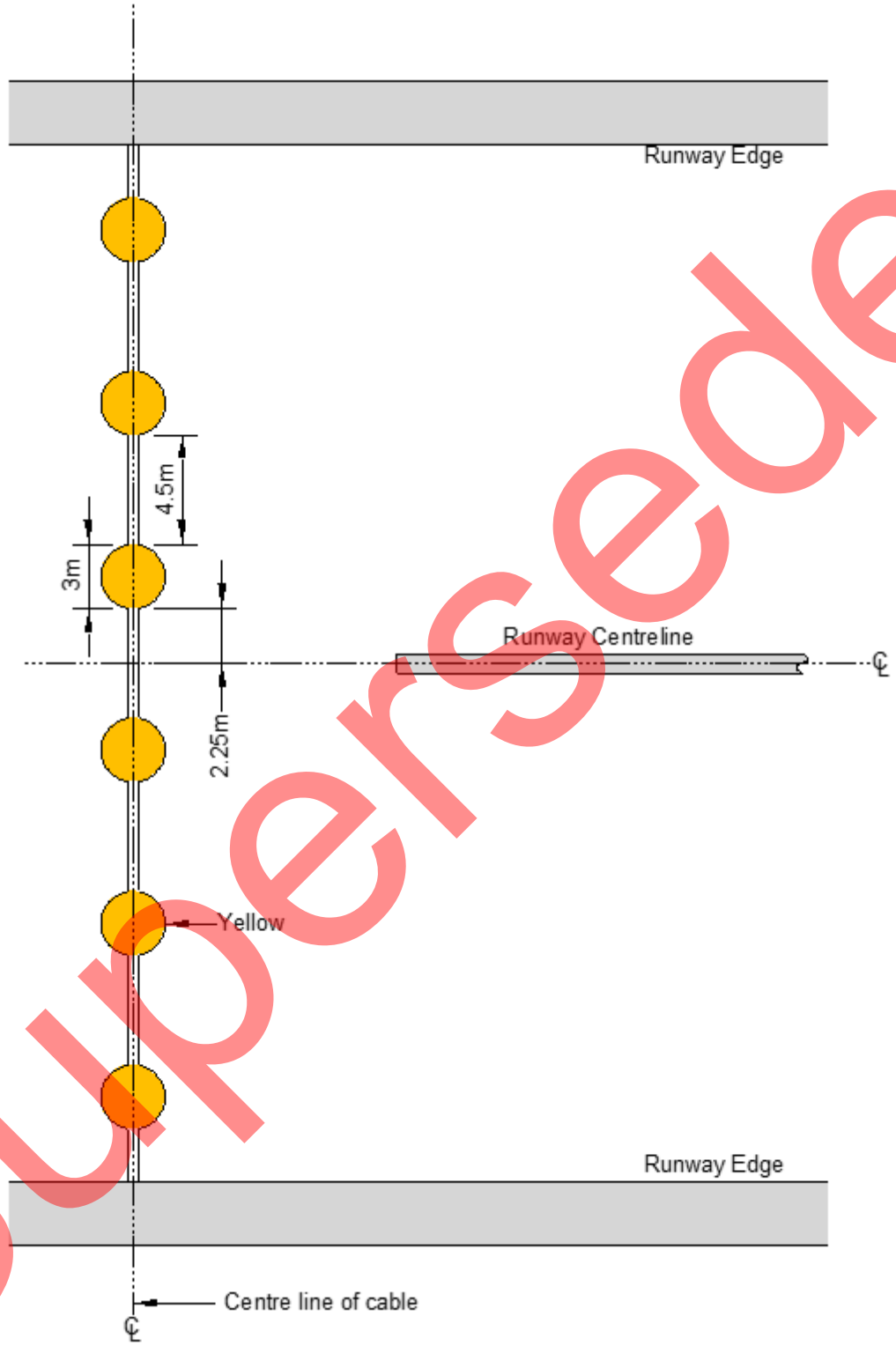
HCM Illuminated hook cable marker

DTRM Illuminated distance to run marker

Superseded

ANNEX C HOOKCABLE RUNWAY MARKINGS

HOOKCABLE RUNWAY MARKINGS



Superseded

NAVIGATION CHECK POINT MARKINGS

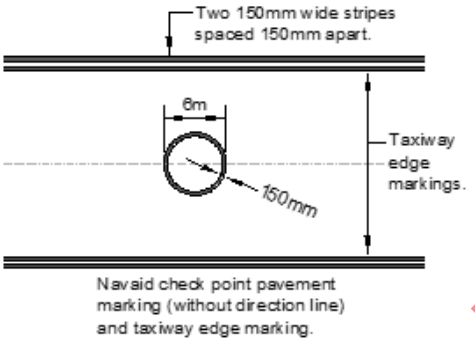


Figure 1. Navigation Aid Pavement Marking

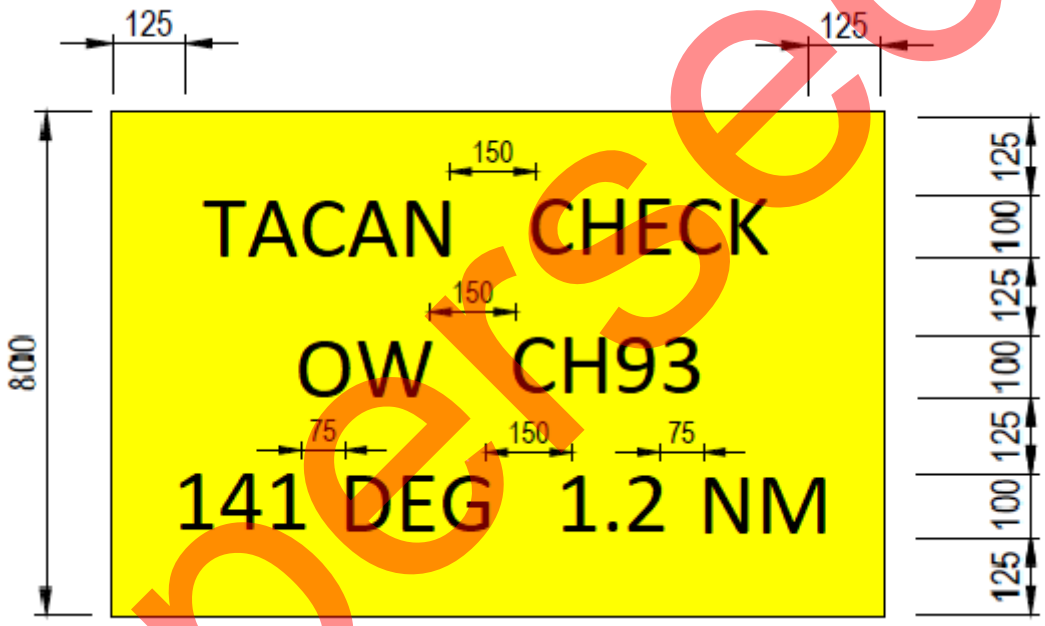


Figure 2. Typical Navigation Check Sign (TACAN)

Superseded

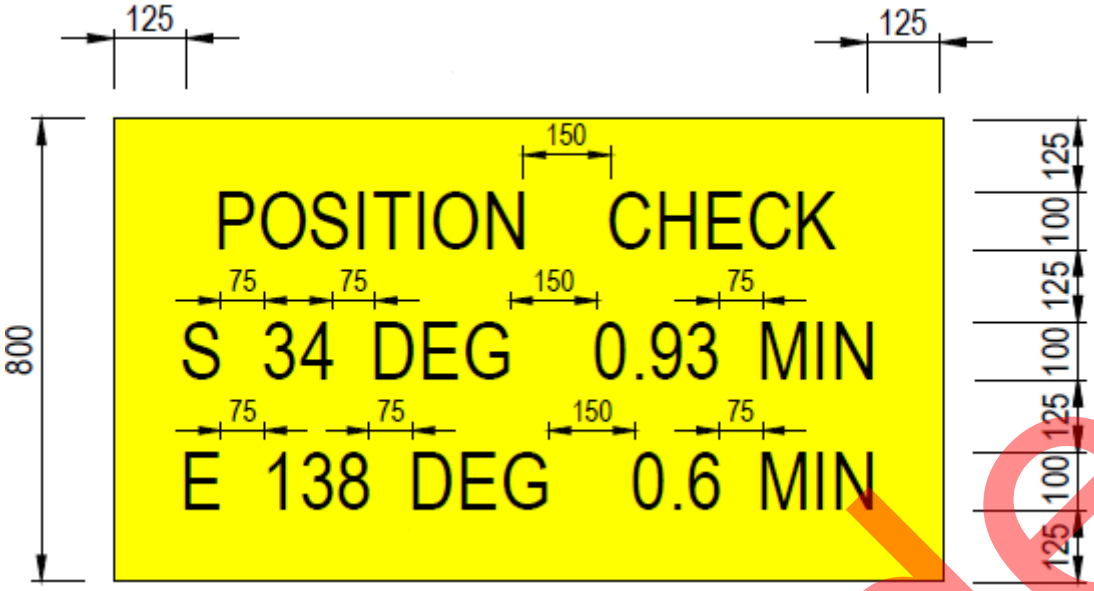


Figure 3. Typical Navigation Check Sign (Position)

Superseded

DEFENCE LAND-BASED HELIPORTS

INTRODUCTION

3.1 This chapter details the design requirements for land-based heliports used solely for rotary wing operations. Such heliports do not form part of a larger aerodrome that is primarily used by fixed wing aircraft. For the design requirements for integrating rotary wing operations into these fixed-wing aerodromes, refer to Chapter 2 of this section.

3.2 Land-based heliports range from a single-spot Helicopter Landing Site (HLS), with a suitable Final Approach and Take-Off Area (FATO), through to large rotary wing aerodromes with multiple integrated FATOs, extensive aprons and several helicopter runways and air/ground taxiways. The intent of this chapter is to provide design requirements for all types of heliports, in a form that is scalable depending on the capability requirement.

3.3 The primary design standard for land-based heliports is the International Civil Aviation Organisation (ICAO) Annex 14 Aerodromes Volume II Heliports Edition 5. Where necessary, this standard is supplemented or replaced by other requirements, such as those detailed in US Department of Defense Unified Facilities Criteria (UFC) 3-260-01 Airfield and Heliport Planning and Design.

3.4 For some design elements, ICAO Annex 14 Volume II Edition 5 makes reference to relevant sections of ICAO Annex 14 Volume I. Where such references are made, they have sometimes been replaced by reference to the requirements for land based aerodromes, previously detailed in Chapter 2 of this section.

3.5 The DASA should be consulted to resolve any ambiguity, or if further clarification is required in implementing these requirements.

HELIPORT DESIGN REQUIREMENTS

3.6 The land-based heliport design requirements and the associated variations and supplementations defined by the Authority for each of the identified design elements detailed in Chapter 1 annex A of this section, are described below.

Design element: Physical characteristics of movement facilities

3.7 The number, location and required functionality of movement facilities[1] to be included on a Defence heliport are capability decisions to be made in accordance with Defence's capability planning processes. For example, the number of required FATOs, whether they are runway-type or spot-type, and their required capability, depends on their intended use. Different FATOs may be required for regular operations, test/maintenance check flights, for the hook-up of external lift/underslung loads, SAR/crash response and other activities.

Superseded

3.8 ***Design requirement.*** *Having made these capability decisions, the design of the physical characteristics of these movement facilities must comply with the relevant requirements of ICAO Annex 14, Volume II, Edition 5, Section 3.1 Onshore Heliports, except for the following:*

(a) ***Final Approach and Take-Off Areas.*** *For paragraph 3.1.3, where a FATO is to be located on a runway, the 'rotary-wing runway' must satisfy the US Army requirements of UFC 3-260-01 sections 4-3.2 and 4-3.3, with the following exceptions:*

1. *For performance Class 1 operations the approach and departure path slope must be 1:22 rather than the 1:8 slope detailed in Figure 4-1.*

2. *The references in section 4-3.3 to the clear zones detailed in Figure 4-3 do not apply.*

(b) ***Touchdown and Lift-Off Areas (TLOF).*** *The requirements in paragraphs 3.1.21-24 and 3.1.26-31 must be supplemented by the US Army dimensional requirements in UFC 3-260-01 section 4-4.6 Dimensional Criteria. To the extent that the grade requirements conflict, the ICAO requirements prevail. Paragraphs 3.1.25 and 3.1.32 are not relevant to Defence heliport certification.*

(c) ***Helicopter clearways.*** *The requirements in paragraphs 3.1.16-20 must be supplemented by the US Army requirements within UFC 3-260-01 section 4-11 Overruns for Rotary-Wing Runways and Landing Lanes.*

(d) ***Mobile objects.*** *The comments about 'mobile object' in paragraphs 3.1.10/37/53 do not contain design requirements and are therefore not applicable to Defence heliport design.*

(e) ***Taxiways and taxiroutes.*** *Note 3 above paragraph 3.1.33 is not relevant to Defence heliport design. The requirements in paragraphs 3.1.33-43 must be supplemented by the US Army dimensional requirements in UFC 3-260-01 section 5-6 Rotary-Wing Taxiway Dimensions. To the extent that the grade requirements conflict, the ICAO requirements prevail.*

(f) ***Helicopter stands.*** *The requirements in paragraphs 3.1.44-55 must be supplemented by the requirements detailed in UFC 3-260-01 Section 6-7 Parking Apron for Rotary-Wing Aircraft. This section provides the layout and parking separation distances for both single-main-rotor and tandem-rotor helicopters. The Type 1 parking configuration is to be applied within Defence heliports given that the Type 2 configuration may create refuelling problems. Paragraph 6-7.6.1.1 of UFC 3-260-01 is not relevant to Defence heliport certification.*

(g) ***Rotary-Wing Landing Lanes.*** *Landing lanes are a military concept that allow numerous simultaneous launch and recovery operations. Any landing lanes to be included in Defence heliports are to comply with the requirements in UFC 3-260-01 Section 4-8 Rotary-Wing Landing Lanes. To the extent that these requirements conflict with ICAO FATO/TLOF requirements, the ICAO requirements prevail.*

(h) ***Overruns for rotary-wing runways and landing lanes.*** *Overruns are required at the end of all rotary-wing runways and landing lanes in accordance with the requirements in UFC 3-260-01 Section 4-11 Overruns for Rotary-Wing Runways and Landing Lanes. The Air Force/Army dimensions must be used in Item 2 of Table 4-5.*

(i) ***Clear Zone and Accident Prevention Zone.*** *A Clear Zone and Accident Prevention Zone are required under the rotary-wing approach-departure surface, in accordance with the requirements in UFC 3-260-01 Section 4-12 Clear Zone and Accident Prevention Zone (APZ). Comments in paragraph 4-12.1, 4-12.2 and Table 4-6 about land ownership are not relevant to Defence heliports.*

Superseded

Design element: Aircraft arresting systems

3.9 This design element is not relevant to Defence heliport certification.

Design element: Obstacle restriction and limitation

3.10 ***Design requirement.*** *The design of obstacle restrictions and limitations must comply with the requirements of ICAO Annex 14, Volume II, Edition 5, Chapter 4 Obstacle Environment, except for the following:*

(a) ***Paragraph 4.1.11.*** *The appropriate authority mentioned in Note 1 is the DASA.*

(b) *Paragraphs 4.1.22 through 26 are not relevant to Defence heliport certification.*

(c) *Figure 4-3 Note 2 does not contain design requirements and is therefore not applicable to Defence heliport certification.*

(d) *Paragraph 4.2.1 Note 2 does not contain design requirements and is therefore not applicable to Defence heliport certification.*

(e) ***Paragraphs 4.2.4-4.2.7.*** *The appropriate authority to approve aeronautical studies is the DASA.*

(f) ***Paragraph 4.2.5.*** *The circumstances in which shielding may apply are detailed in the ICAO Airport Services Manual (Doc 9137), Part 6, Appendix 3, paragraphs 2.1 through 2.3.*

(g) *Paragraphs 4.2.9 through 29 and Figures 4.7 through 4.12 are not relevant to Defence heliport certification.*

Design element: Visual Aids Provided by Aerodrome Markings, Markers, Signals, Signs, Wind Direction Indicators, and so on.

3.11 *Design requirement. The design of visual aids provided by heliport markings, markers, signals, signs, wind direction indicators and so on must comply with the requirements of ICAO Annex 14, Volume II, Edition 5, Chapter 5 Visual Aids, Section 5.1 Indicators and Section 5.2 Markings and Markers, except for the following:*

(a) *Chapter 5 Note 4, Paragraph 5.2.2.2 Note 3, paragraphs 5.2.2.8, 5.2.3.1, 5.2.4.1, 5.2.8.2, 5.2.9.4 and 5.2.10.2 are not relevant to Defence heliport certification.*

(b) ***Paragraph 5.2.2.7.*** *The second/third sentences are not relevant to Defence heliport certification.*

(c) ***Paragraph 5.2.4.4.*** *The second sentence is not relevant to Defence heliport certification.*

(d) ***Paragraph 5.2.9.7.*** *The second sentence is not relevant to Defence heliport certification.*

(e) *Sections 5.2.11-12 are not relevant to Defence heliport certification.*

(f) ***Paragraph 5.2.13 Note 2****. Taxi-holding position markings applicable to taxiways intended for ground taxiing of helicopters must comply, where applicable, with CASA MOS Part 139, paragraph 8.39.*

Superseded

Design element: Visual aids provided by aerodrome lighting

3.12 ***Design requirement.*** *The design of heliport lighting must comply with the requirements of ICAO Annex 14, Volume II, Edition 5, Chapter 5 Visual Aids, Section 5.3 Lights, except for the following:*

(a) *Paragraph 5.3.1 Note 2 is not relevant to Defence heliport certification.*

(b) *Paragraphs 5.3.9.3, 5.3.9.7, 5.3.9.8, 5.3.9.11, 5.3.9.18 and 5.3.9.20 are not relevant to Defence heliport certification.*

(c) ***Paragraph 5.3.9.15.*** *The chromaticity and luminance of colours must comply with the relevant requirements in MOS Part 139 (Aerodromes) Chapter 9 Visual aids provided by aerodrome lighting.*

(d) ***5.3.12 Taxiway lights.*** *The design of taxiway lights must comply with the requirements for land based aerodromes, detailed in Chapter 2 of this section under the design element – Visual aids provided by aerodrome lighting.*

(e) ***Paragraph 5.3.13.1/2****. The aeronautical studies must be submitted to the DASA for approval.*

(f) ***Night Vision Goggles (NVG) compatible lighting.*** *Heliport lighting of FATOs, helipads, hoverpoints, runways, landing lanes, ground movement areas, helicopter stands and obstacles should be viewable by aircrew using NVG. In particular:*

1. *All lights needing to be NVG-compatible should be provided with variable intensity steps so that the lighting intensities may be customised to match a heliport's ambient light levels. The starting point for designing the intensity steps is described in Section 8.8.1 of UFC 3-535-01 Visual Air Navigation Facilities.*

2. *Lighting of heliport facilities that have the potential to spill light onto movement areas and interfere with NVG operations must not be visible whilst using NVG.*

3. *Obstruction lights should comply with the NVG compatibility requirements in FAA AC 150/5345-43 Specification for Obstruction Lighting Equipment.*

Design element: Communication, Navigation, Surveillance (CNS) and Meteorological (MET) Facilities

3.13 ***Design requirement.*** *The design of CNS/MET facilities must comply with the requirements for land based aerodromes, detailed in Chapter 2 of this section under the design element – Communication, Navigation, Surveillance (CNS) and Meteorological (MET) Facilities.*

Design element: Earthing points

3.14 ***Design requirement.*** *The design of earthing points must comply with the requirements for land based aerodromes, detailed in Chapter 2 of this section under the design element – Earthing Points.*

Design element: Light aircraft tie-down facilities

3.15 ***Design requirement.*** *The design of helicopter tie-down facilities must comply with the requirements for land based aerodromes detailed in Chapter 2 of this section under the design element – Light Aircraft Tie-down Facilities.*

Superseded

Design element: Radio Communication Facilities

3.16 ***Design requirement.*** *The design of radio communication facilities must comply with the requirements for land based aerodromes detailed in Chapter 2 of this section under the design element – Radio Communication Facilities.*

Design element: Aerodromes Rescue and Fire fighting Services

3.17 ***Design requirement.*** *The design of the facilities and equipment used in aerodrome rescue and fire fighting services must comply with the requirements of ICAO Annex 14 Volume II, Edition 5, Section 6.2, except for the following:*

(a) *Paragraphs 6.2.1.1, 6.2.1.2, 6.2.1.3, 6.2.2.4, 6.2.3.2, 6.2.7, 6.2.3.9-14, 6.2.8.1 and Table 6-3 are not relevant to the design of Defence heliports for certification.*

Superseded

DEFENCE SHIPBORNE HELIPORTS

INTRODUCTION

4.1. The ICAO term 'helideck' comprises helicopter landing sites on both ships and floating/fixed off-shore structures. Australian Defence assets only include ships, with no floating/fixed off-shore structures. As such Defence uses the term 'shipborne heliport' to identify 'helideck' as a landing site on ships.

4.2. This chapter details the design requirements for shipborne heliports. These shipborne heliports are used solely for rotary wing operations (including tilt-rotor). For the design requirements for land based heliports, and integrating rotary wing operations into fixed-wing aerodromes, refer to Chapters 1, 2 and 3 of this section.

4.3. Shipborne heliports range from ships with single-spot flight decks, through to large multi-spot ships with extensive movement areas, helicopter runways and multiple combinations of approach paths and operations. The intent of this chapter is to provide design requirements for all types of shipborne heliports, in a form that is scalable depending on the capability requirement.

4.4. The definition of shipborne heliports does not include ship areas used for utility operations (i.e. VERTREP, Transfer). However as these utility operations are often conducted from the area of the shipborne heliport (i.e the flight deck), design requirements for utility operations are specified in so far as they can affect function of the shipborne heliport (e.g. flight deck markings).

4.5. The shipborne heliport design requirements and the associated variations and supplementations defined by the Authority for each of the identified design elements detailed in Chapter 1 Annex A of this section, are described below.

4.6. This Chapter derived all its Safety of Flight (SoF) requirements from DEF(AUST)5000 Vol 11 Pt03 Iss02 (Nov 17). This chapter takes precedence over Vol 11 Part 3 for all SoF requirements. All personnel/ships safety and capability requirements for a shipborne heliport are kept retained in the unaltered DEF(AUST)5000 Vol 11 publications with sponsorship transferred to DGEng-N. DEF(AUST)5000 is the whole of ship Maritime Materiel Requirement Set (MMRS). These requirements will transition into the Australian Naval Classification Framework (ANCF) in due course.

4.7. The DASA should be consulted to resolve any ambiguity, or if further clarification is required in implementing these SoF requirements. Any concerns with requirements coverage, precedence or other issues in relation to SoF shipborne heliport requirements are to be addressed to DASA. Other requirements to DGEng-N.

HAZARD INFORMATION

4.8. Aviation operations at sea are hazardous. They are a 'whole of ship evolution' where the equipment are subject to temperature extremes, high seas and wind states, rotor downwash, high salt-laden environment, black noise levels, radiation from electromagnetic sources along with exposure and close proximity to potentially lethal equipment (weapons, ordnance, rotor blades,

Superseded

exhaust effluxes, high-pressure gas and fluid systems). These operations may be conducted through both day and night, including via NVD and in extreme conditions on wet and moving decks, and within confined spaces. These operations require personnel to be routinely closer to the operating aircraft than may be the case in a shore-based operations.

4.9. It is essential that aviation evolutions are conducted effectively, efficiently and safely to minimise the hazard to the ship, ships personnel and its effect on unrelated ships activities. Aviation operations create extra hazards for the ship, as any accidents endanger the safety of the ship as a whole. An aircraft crash on deck with the related risk of shrapnel damage and an aviation fuel fire could be catastrophic. In times of conflict, the loss of an air asset severely decreases the effectiveness and ability of a ship to carry out its mission to fight and win at sea. Conduct of air operations can affect every department on the ship.

4.10. Shipborne heliport operations experience hazards, additional to those associated with Aerodrome Design elements as defined by DASDRM S6 C1 Annex A. These hazards are associated with the movement of a shipborne heliport (both in location and attitude), communications and situational awareness, which are not covered by an Air Navigation Service Provider as they are for land-based aerodromes. To address these types of hazards, this chapter of DASDRM contains additional requirements for those design elements that are not common to land based aerodromes.

SHIPBORNE HELIPORT DESIGN REQUIREMENTS

Shipborne Heliport Communications

4.11. The various communications networks shall be available at the locations detailed in Table 1.

Table 1 - Communications Networks

STATION/ USER	NETWORK					
	UHF Radio	Main Broadcast[2]	Flight Deck Broadcast	Helicopter Intercom	Flight Deck Team[3]	Phone[5]
Bridge	T/R [1]	T/R		T/R		T/R
Ops Room/AC	T/R	T/R		T/R		T/R
HCO	T/R	R	T/R	T/R	T/R	T/R
LSO	T/R	R	T/R	T/R	T/R	T/R
FDO	T/R	R	T/R	T/R	T/R	T/R
VERTREP CS	T/R	R		T/R		T/R
Transfer CS	T/R	R		T/R		T/R
FDM		R [6]	R [6]	T/R [4]	T/R	
Flight Deck Crew		R [6]	R [6]		R	
Helicopter	T/R					
Flight Deck		R	R			T/R
Hangar		R	R			T/R
VERTREP Area		R				
Transfer Area		R				
RAST machinery room		R	R			T/R
Helicopter Firefighting Station		R	R			T/R
Refuelling stations		R	R			T/R
Ships Primary Damage Control		R				T/R

Superseded

T – Transmit, R- Receive

Note 1. *Typically the Bridge does not communicate directly with aircraft.*
Note 2. *Main Broadcast is broadcast throughout the ship.*
Note 3. *Flight Deck Team communications should be wireless.*
Note 4. *For FDM communication on the Helicopter Intercom a wireless headset connection shall be provided.*
Note 5. *In this table, ship telephone system includes electronic phone and sound-powered phone for redundancy.*
Note 6. *FDM and FD Crew are unlikely to hear broadcasts with hearing protection donned, however broadcast communications are required when activities are conducted without hearing protection.*

4.12. **External Radio Communications.** The external radio communications detailed in this section shall be provided for all air capable ships to support the coordination of aviation operations at sea. DEF(AUST)5000–Vol 06 Pt 02 Sec 13 provides RAN requirements for radio frequency systems.

4.13. The external radio systems shall be able to communicate with the required aircraft over all ranges required within the Navigation and Tracking aid requirements defined in Table 2 (located at para 4.145).

4.14. **UHF Radio.** A UHF radio patch shall be provided from the ship's normal UHF transmitter/ receiver equipment to the stations indicated at Table 1. A standby UHF radio circuit shall be provided from the ship's normal UHF transmitter/receiver equipment as back-up to the primary UHF system during flying operations. This circuit shall be immediately available in case of failure of the primary circuit for patching to the same stations.

4.15. **Distress Monitoring.** A loudspeaker monitoring facility shall be provided for the International UHF Distress Frequency. This shall be patched through from the ship's normal UHF receiver equipment to the Operations Room, Helicopter Control Station (HCS) and Communications Centre (COMCEN) during flying operations.

4.16. **Emergency Standby VHF Radio.** An emergency standby, battery-powered, portable VHF radio shall be provided on the Bridge during flying operations.

4.17. **Search and Rescue Radio Direction Finding.** All air capable ships shall be equipped with a Radio Direction Finding set capable of giving homing indication from the standard aircrew search and rescue beacon equipment used in the RAN. The normal frequencies used are 121.5 MHz, 123.1 MHz, 243.0 MHz, 282.8 MHz and 406 MHz.

4.18. **Internal Communications.** The aviation facilities communications systems shall be common to the ship's general internal communication systems. Internal communications systems shall comply with DEF(AUST)5000–Vol 06 Pt 06 Sec 01. Facilities shall be provided as specified in the following paragraphs.

4.19. **Intercom System.** An open–line intercom system exclusively for helicopter operations (designated 'HELICOPTER INTERCOM') shall be provided between the stations indicated at Table 1.

(a) The intercom facility shall be combined into the operator's headset.

4.20. **Wire-Free Flight Deck Communications.** A wire-free intercom system (designated 'FLIGHT DECK MARSHALLING') shall be provided. The system shall comply with Australian standards for

Superseded

hearing protection and shall facilitate reception of communications as per Flight Deck Team at Table 1 through individual headsets. Transmit function shall be restricted to the Helicopter Control Officer (HCO), Flight Deck Marshaller (FDM), Landing Safety Officer (LSO) and Flight Deck Officer (FDO) as applicable. The system shall be EMC compatible, intrinsically safe within the operational environment, NVD compliant as required, and comply with Work Health and Safety standards. Consideration should be given for encryption.

4.21.1. **Internal Telephone and Ship's Service Telephone.** Internal Telephone and / or Ship service telephones shall be installed in all aviation-related areas as per Table 1 to provide point to point communications and also conference call facilities. In high noise areas, a flashing light shall be provided to attract attention.

4.21.2 **Sound-Powered Telephones.** A sound-powered telephone system shall be provided as an alternative or as a backup in emergency situations for the Telephone system between the stations shown in Table 1.

4.22. **Broadcast Systems.** The following broadcast systems, applicable to aviation operations, shall comply with DEF(AUST)5000 Vol 6 Pt 6 Sec 1 (except for the reference to ABR 5419 is to be replaced with ANP 3300) and the following:

(a) **Flight Deck Broadcast (FDB).** A broadcast system exclusively for flight deck operations shall be provided as shown in Table 1 with transmit facilities at the HCO, LSO and FDO positions (where applicable).

(b) **Main Broadcast (MB).** Loudspeakers for the ship's main broadcast announcements shall be installed at the positions designated in Table 1 with transmit facilities at the Bridge, Operations Room/Aircraft Control (AC) station, HCO, LSO and FDO positions.

Command Request and Approval Systems

4.23. The ship shall provide a system that enables the HCO/LSO/FDO to request approval for aircraft operations, and then for the Commanding Officer to approve (or not approve) the request without dependence on voice communications.

4.24. **Captain's Ready Deck Circuit.** A Captain's Ready Deck Circuit shall be installed between the Bridge and Operations room and the HCO/LSO/FDO (control position), as applicable, to permit the Captain to maintain control over aircraft operations. The Captain's Ready Deck Circuit shall provide the following facilities:

(a) The HCO/LSO/FDO display/control console shall allow the operator to request clearance/ approval for a particular type of operation (covering all operations the ship is capable of performing). The console shall indicate that the clearance has been requested until the Bridge responds with a YES or NO.

(b) The Bridge display/control console shall include an indicator and cancellable audible device to indicate when the HCO/LSO/FDO has requested clearance for a particular type of evolution. The Bridge shall be able to respond with a YES or NO. An indicator light at the HCO/LSO/FDO shall display the selection made by the bridge indicating if the operation has been approved or not approved.

(c) A display/control console shall be integrated into the Helmsman's control console on the bridge. The display shall be visible to an OOW standing midships of the bridge.

Superseded

(d) A similar display/control console should be located at the Aircraft Controller (AC) position in the Operations room.

(e) The HCO/LSO/FDO, Bridge Staff and AC shall each have the ability to initiate an emergency wave-off. Initiation of an emergency wave-off shall be indicated to all consoles with a combination of flashing lights and an audible alarm. The audible alarm shall be cancellable for each individual station. The emergency wave-off shall be cancelled by the initiating control station only.

Ship External Lighting

Floodlighting

4.25. Floodlighting shall be aimed to provide the best possible illumination of the deck area while keeping spill over of the flight deck to a minimum. Floodlighting shall avoid shining directly into the cockpit during take-off and landing and when on the flight deck.

Night Vision Device Compatibility

4.26. Lighting of ships certified for night operations (Level I or II) shall comply with DEFSTAN 02-587. The NVD compatibility of lighting systems shall be assessed against the class (or classes) of Night Vision system in use on ADF helicopters.

4.27. Lighting includes aviation-specific lights such as deck wash lights, visual landing aids such as SGSI and HRS, and non-aviation lights visible during launch, recovery, VERTREP and transfer operations (examples include emergency lighting, boat deck lighting, etc).

Closed Circuit TeleVision (CCTV) system

4.28. **General.** A CCTV system shall provide a video feed of the flight deck to at least the Bridge, AC station in Operations Room, hangar and HCS for any spots that cannot be seen clearly with the naked eye in the intended range of environmental conditions.

4.29. The CCTV system shall enable appropriate actions in the event of an emergency in addition to general situational awareness as a means of reducing risk.

4.30. The CCTV images shall be fed to Damage Control locations and hangar.

4.31. The CCTV system shall provide a video feed of the hangar to provide images to ship Command and Damage Control locations, so that during an incident, the Crash Rescue Fire Fighting (CRFF) team/s and automated fire detection systems can be monitored.

4.32. **CCTV Video Recording.** The CCTV system shall incorporate a video recording capability with the following features:

(a) All flight deck video cameras shall be recorded concurrently if there is more than one camera.

(b) The video feed to the recorder shall be independent of the selection at any of the displays, i.e. it shall not be possible to inadvertently record a feed other than flight deck cameras.

Superseded

(c) Flight deck video shall be recorded continuously to ensure video recording is not inadvertently forgotten. If this is not the case, then the video recorder control shall be located in the HCS.

(d) The system shall have a minimum seven-day recording capability.

(e) It shall be possible to quarantine video (so that it cannot be deleted) in the event of an accident or incident.

(f) It shall be possible to copy selected video to other media for further analysis or archiving.

(g) The field of view shall provide coverage of the helicopter final approach path and flight deck area during helicopter operations including land/launch, HIFR, VERTREP and Transfer. The camera shall also have remote zoom/scan facility from the HCS, to provide coverage of the landing area, approach paths and hangars

(h) The camera shall have anti-glare and low light capability down to 0.002 Lux.

(i) The camera shall be sited in a position protected from weather and physical damage and fitted with a remotely operated wash/wipe capability.

Fire Protection

4.33. **Aviation Firefighting – Flight Deck.** As described within STANAG 7183, occupants of an aircraft subject to fire can't be expected to survive if exposed for 90 seconds or more. The response and effectiveness of the aviation firefighting system is critical to the rescue of those occupants and wider protection of the vessel and its crew. Therefore, designers shall demonstrate that:

(a) The aviation firefighting system is able to bring the fire under control within one minute (60 seconds) from the incident occurring.

(b) The fire can be contained to enable 'rescue' of the occupants to commence as soon as possible after the incident occurring and suppressed for sufficient time to complete the rescue operation.

(c) The fire can be fully extinguished shortly afterwards.

(d) Sufficient extinguishing agent remains to maintain control of the incident, prevent re-ignition (burn back), protect the vessel and 'cool' any munitions carried by the aircraft. STANAG 4240 details the testing of munitions subject to aviation fuel fires.

4.34. To demonstrate compliance with the above requirements, the designer shall conduct a Fire Safety Study (FSS) in accordance with DEF(AUST)5000, Volume 7, Part 2 Annex B.

Fire Protection – Foam Properties

4.35. Foam extinguishing agent shall meet the requirements of MIL-F-24385F as detailed in DEF(AUST) 5000, Volume 7, Part 2, Annex K.

4.36. The FSS required in paragraph 4.34 shall demonstrate that the foam meets MIL-F- 24385F requirements.

Superseded

4.37. **Foam Quantities and Application Rates.** In determining the foam quantity and application rate to effectively control, contain and extinguish an aviation fuel fire, the dimensions of the largest aircraft that the flight deck is designed to accommodate shall be used to determine the Practical Critical Area (PCA). The method of calculation in STANAG 7183 shall be used to determine PCA.

4.38. For aircraft with external fuel tanks, the width aspect of the PCA does not incorporate the tanks.

4.39. The methodology within DEF(AUST)5000, Volume 7, Part 2, Annex K shall be used to determine the two-dimensional foam quantity requirements in addition to those for the PCA.

4.40. DEF(AUST)5000 Volume 7, Part 2 Annex K shall be used to determine the application rates for foam systems.

4.41. Time from firefighting system activation until correctly proportioned foam is delivered on to the landing area from all Foam Systems shall be documented.

4.42. The FSS required in paragraph 4.34 shall demonstrate how the quantities and application rates were determined for the largest helicopter to be operated, and how they correlate to controlling the fire within one minute, containing the fire, extinguishing the fire and protecting the vessel.

Fire Protection - Remotely Operated Fixed Foam Systems.

4.43. Remotely operated fixed foam firefighting systems shall be installed. In-deck (flush deck) and deck edge sprinklers are the preferred system and shall be designed to meet the requirements in DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.44. Oscillating Foam Monitors are an alternative system, however they shall meet the requirements of DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.45. Fixed foam storage systems, supplying automated fixed foam systems, shall meet the requirements of DEF(AUST)5000 Volume 7, Part 2, Annex K.

4.46. Remotely operated fixed foam systems shall be designed such that the required foam quantity and application rates can still be delivered should part of the system(s) be rendered unusable by the incident occurring. In the case of foam monitors, each monitor shall be able to deliver the required quantity of agent at the appropriate rate should the other(s) become unusable.

4.47. Location of activation points for the remotely operated systems shall be in accordance with DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.48. Remotely operated fixed foam systems shall provide coverage to all areas of the flight deck where the PCA can reside.

4.49. The FSS required in paragraph 4.34 shall demonstrate compliance with the requirements in this section (Fire protection), detailing the system redundancy performance and location of monitors for most effective performance.

Superseded

4.50. Hand-held foam hose lines shall be installed to provide a directed extinguishing agent to the scene of the fire and shall be designed to cover all areas of the flight deck where the PCA can reside.

4.51. Hand-held foam hose lines utilising either fixed proportioning systems or inductors and portable drums of foam shall be provided. The hand-held foam hose lines shall deliver the quantities of foam, at the appropriate application rate, as detailed in DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.52. The location of the foam hose lines shall be designed to afford the best possible protection from damage resulting from the aircraft incident and shall provide full redundancy should other hose lines become unusable.

4.53. Hand-held foam hose lines shall be installed with aspirating foam nozzles.

4.54. Proportioning systems, storage tanks and/or portable drums shall provide sufficient foam agent in accordance with DEF(AUST)5000, Volume 7, Part 2, Annex K requirements.

4.55. The FSS required in paragraph 4.34 shall demonstrate that the design of the foam hand-held hose lines support the remotely operated fixed systems in controlling, containing and extinguishing the fire within the required timeframes, and have the endurance to continue protection of the vessel and 'cooling' of munitions.

Fire Protection – Foam Aspiration

4.56. All flight deck AFFF firefighting systems shall correctly aspirate foam.

4.57. In-deck sprinkling systems naturally aspirate the foam agent at discharge. Non-aspirating in-deck nozzles, meeting requirements of DEF(AUST)5000, Volume 7, Part 2, Annex K, are acceptable.

4.58. Hand-held foam hose lines shall be fitted with aspirating nozzles in accordance with the requirements at DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.59. Foam monitor nozzles shall meet the requirements of DEF(AUST)5000, Volume 7, Part 2, Annex K.

4.60. The FSS required in paragraph 4.34 shall demonstrate that the nozzles for handheld lines, in-deck sprinklers and foam monitors aspirate the foam effectively, having taken into consideration environmental effects, such as the strength of the wind across the flight deck, in conditions reflective of aircraft operations, i.e. Ship Helicopter Operating Limits (SHOL).

Fire Protection - Miscellaneous

4.61. **Operating Instructions.** Operating instructions for all firefighting equipment and systems shall be posted adjacent to the system or equipment.

4.62. To prevent the spread of the fire and reduce effectiveness of the emergency response, fuel (spillage) from the flight deck shall not be able to enter the hangar.

Superseded

4.63. **VERTREP Operating Area.** The fixed fire-fighting system (remotely operated and hand held) requirements for air capable ships shall be met for operations to VERTREP operating areas. The FSS required in paragraph 4.34 shall demonstrate how the design of the system(s) reflects the largest aircraft that shall conduct the operation (including largest fuel load), taking into consideration the types of underslung load for the type of vessel.

Aviation System Storage Area

Hangar Doors

4.64. **Hangar Door Pressure Tolerance.** The hangar door shall be operable (open and close) with winds in any direction up to 60 kts.

4.65. **Hangar Door – Requirements when Closed.** In the closed position, the hangar door shall:

(a) Prevent any light from being visible from outboard during 'Darken Ship' conditions.

(b) Comply with fuel-spill prevention requirements of paragraph 4.62.

4.66. **Other Hangar Accesses.** In addition to the main hangar door access, there shall be a general access between the flight deck and hangar area. This access shall be provided for normal passage, and may be used for emergency passage as per the requirements of paragraph 4.85 and 4.86. The general access shall be operable from both sides, open onto the flight deck and, when closed, maintain the weather tightness and fire resistance of the hangar area. Provision shall be made at this hatch for blackout curtaining to prevent light from the hangar being shown inadvertently on the flight deck. Access to the interior of the ship from the hangar shall also be available. General access from the flight deck to the interior of the ship shall not be via the hangar/hangars.

4.67. **Viewing Port.** The hangar general access door, or the immediate surround, shall be fitted with a viewing port, which permits CRFF team in the hangar to observe operations on the flight deck when the hangar door is closed. The viewing port shall:

(a) Meet the requirements of paragraph 4.181.

(b) Be fitted with an integral blackout cover that shall prevent light from spilling onto the flight deck, remain attached when open and closed, and shall be able to be locked in both the open and closed position.

Hangar Internal Lighting

4.68. Hangar internal lighting shall be controlled such that it will automatically switch to night lighting if the hangar door (or other hangar access to the flight deck) is opened while the lights are on.

Flight Operations Area

Clearance Criteria for Landing and Launching Operations

4.69. For a ship to be certified to land and launch a helicopter, certain minimum clearances within defined clearance areas and approach flight paths are required and shall be assessed separately for each helicopter type under consideration.

Superseded

4.70. The clearance criteria are based on a concept of a landing scatter (dispersion) and an airborne scatter (see Annex A). The landing and airborne scatter are centred on a nominal landing position, or 'reference position'. In essence, several clearance 'volumes' are constructed and overlaid on the flight deck, and any part of the ship superstructure or components on the flight deck shall lie outside of these volumes.

4.71. **Reference Position.** The reference position (also called the landing position) is the intersection of the fore/aft position line, known as the Pilots Eye Line (PEL) and the lateral line-up line painted on the flight deck. The pilot's eye line shall pass through the fore/aft position line, and the aircraft shall be centred on the lateral line-up line.

4.72. Minimum helicopter clearances are given in Annex A to this chapter.

Flight Deck

4.73. The flight deck is the clear area of deck where air capable ships conduct helicopter operations including landing, take-off, parking and traversing. The flight deck area includes the total deck area outside of the helicopter landing area.

4.74. Ships exhaust can have a significant negative impact on helicopter performance. Siting of the flight deck shall consider location in reference to ships exhaust systems.

Flight Deck Marking

4.75. The flight deck and landing area shall be marked to provide the aircrew with reference lines and guidance for the touchdown area and/or VERTREP/Transfer/HIFR point. Landing area markings and clearances shall be provided for Class 1, 2, 2A or 3 operations. The marking arrangements for a landing area are dependent on the aircraft type to be operated and the approach path and landing orientation of the helicopter. Generic deck markings are shown at Figure 2.

4.76. For new ships or resurfaced flight decks, the following requirements shall be met:

(a) **Fore/aft Position Line.** The fore/aft position line shall pass laterally through the Pilots Eye Line when the aircraft is in the optimal landing position on the flight deck, and extend athwartships across the entire flight deck to provide maximum visibility. On narrow ships (e.g. frigates and destroyers), the fore/aft position lines shall be extended to the extremity of the flight deck nets and should extended beyond the flight deck nets.

(b) **Lateral Line-up Line.** The lateral line-up line shall pass through the centre of the landing position and forward as far as practicable, including vertically up the bulkhead forward of the flight deck (or hangar door if the hangar is located forward of the flight deck). The lateral line-up line should also continue aft to the aft periphery line marking. The lateral line-up line may also extend vertically down the stern of the ship if practicable.

(c) **NVG Lines.** Dashed NVG lines shall be painted forward from the landing position at an angle of 35-40° from the centreline. The NVG lines shall be positioned such that the starboard NVG line emanates from the right seat pilot position (whilst the primary aircraft is positioned in the optimal landing position), and the port NVG line emanates from the left seat pilot position, as shown at Figure 1.

Superseded

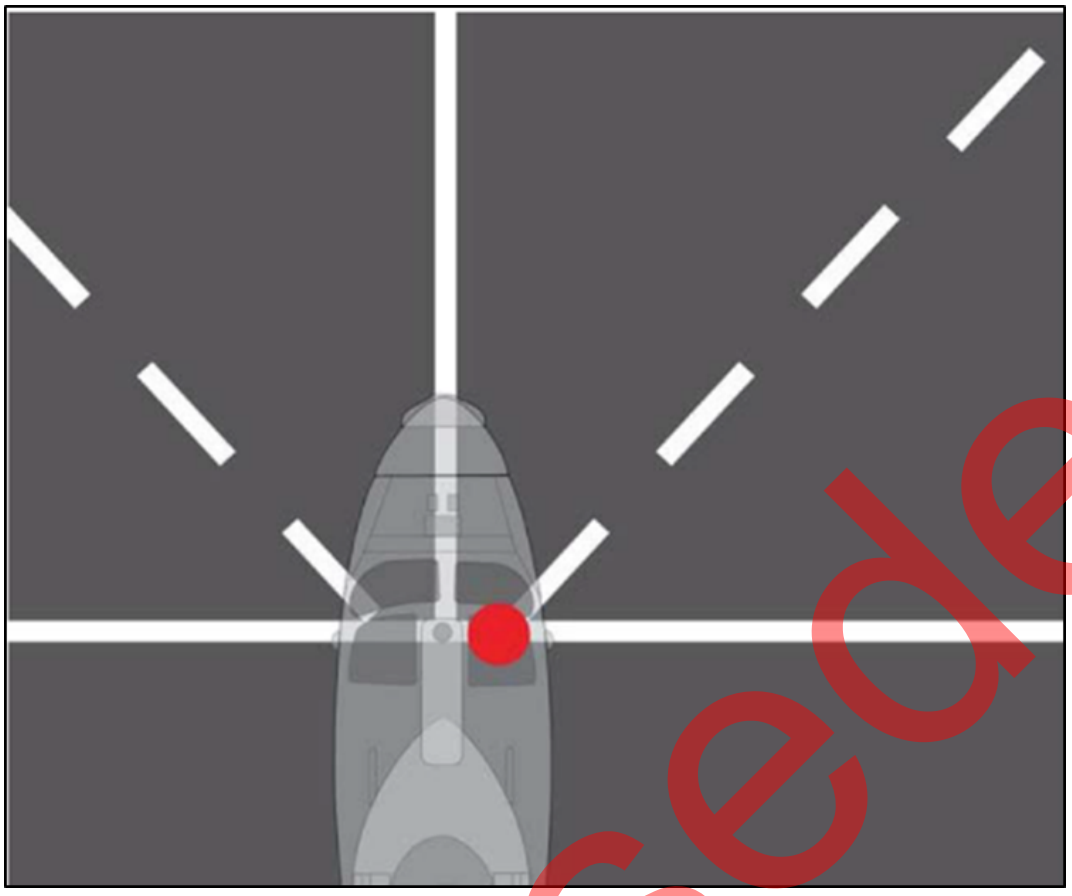


Figure 1 - NVG Line-up Lines

(d) **Periphery Lines.** Periphery lines shall be marked near the deck edge so that the pilot can avoid the edge or obstructions during landing, and to assist flight deck team situational awareness, particularly at night.

(e) **Rotor Clearance Line.** A red rotor clearance (safety) line shall be painted on the flight deck to identify the region where the main rotor could sweep, taking into account airborne scatter. The placement of this line shall be conducted considering room for the deck team to stand during manned flight deck launches and recoveries. See Annex A paragraph 4.A.12.

(f) **Deck covering.** The entire deck area (within the periphery line markings and all aircraft traversing, hangar and parking areas) shall be covered with dark grey non-slip deck covering compound and shall meet the required friction standard (see paras 4.79 and 4.80).

(g) **Marking lines.** Unless otherwise stated, marking lines shall be 300 mm wide and painted with white non-slip paint. The paint shall also meet the required friction standard (see paras 4.79 and 4.80).

(h) **HIFR marking.** If the vessel is capable of conducting HIFR operations, a white 'H' shall be painted in accordance with Clearance requirements at Annex A and Figure 3 to indicate the appropriate area.

(i) **VERTREP markings.** If the flight deck is to be used for VERTREP operations, then the VERTREP markings shall be provided in accordance with MPP-02.3.3 Vertical Replenishment (VERTREP) Operating Areas, Marking, Clearances and Lighting.

Superseded

(j) **Hull number.** The ship's hull number, conforming to the standard prescribed in Figure 4, shall also be painted within the periphery line markings to aid in identifying the particular vessel.

(k) **Armament Installation/RADHAZ Danger Areas.** Armament installation hazard area (e.g. Weapon arc movement line)/RADHAZ danger areas shall not impinge within the periphery line markings of a flight deck area.

Flight Deck Physical Characteristics

Common Deck Markings for Aviation Operations

4.77. **Typical Flight Deck Configuration.** Figure 2 shows generic flight deck markings for an air capable ship.

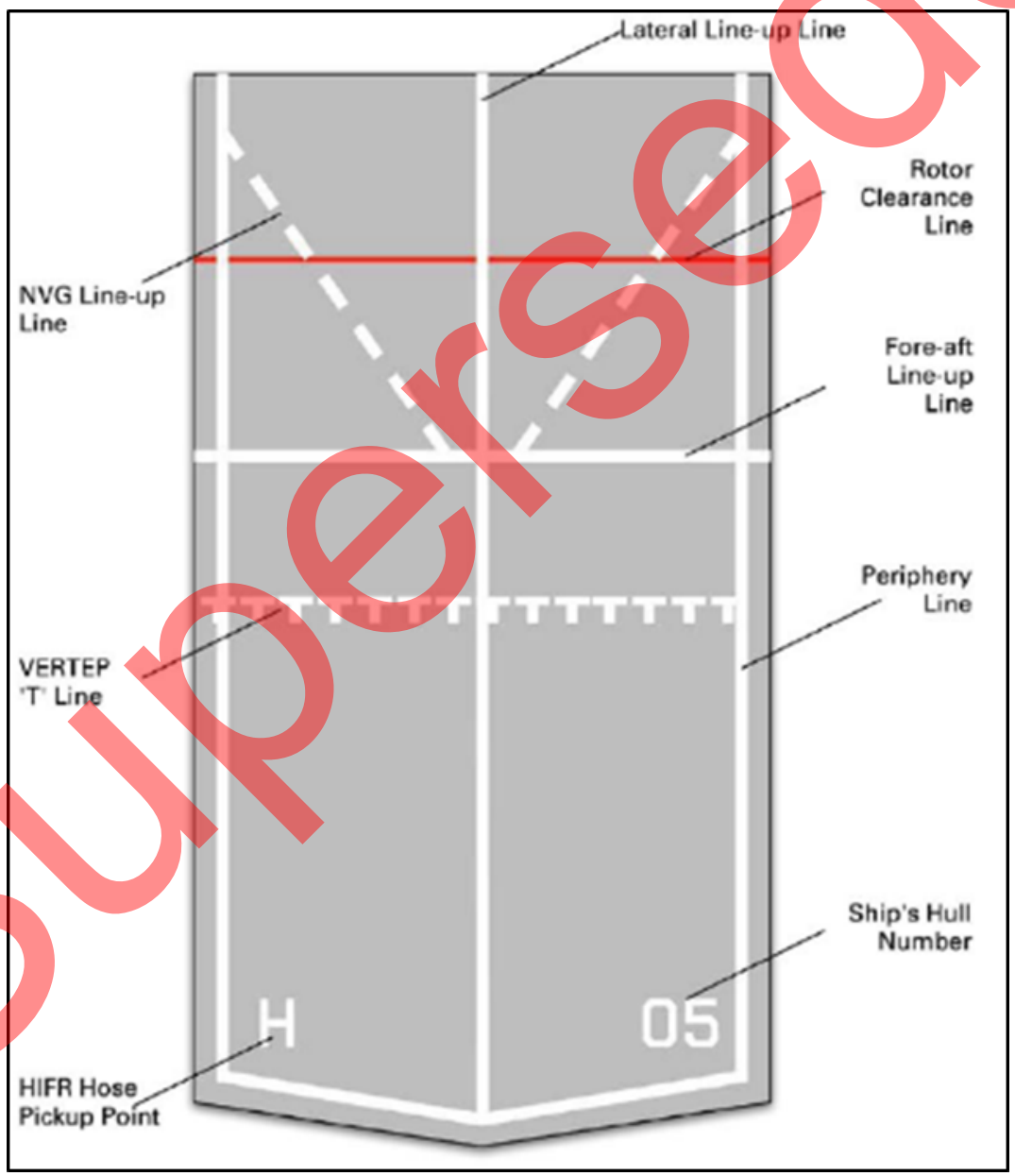


Figure 2 - Common Flight Deck Markings

Superseded

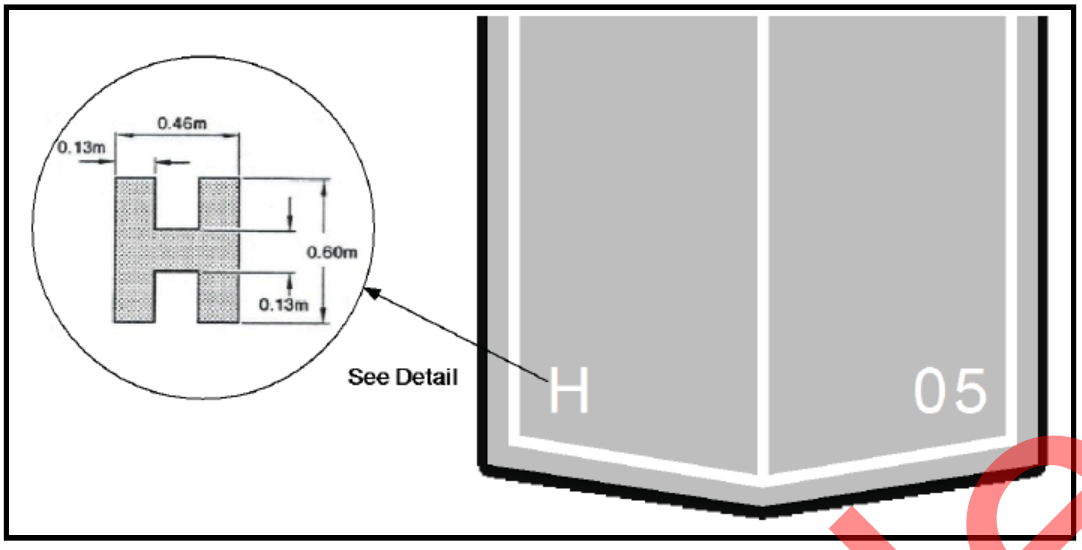


Figure 3 - Typical HIFR Point Markings and Dimensions (Refer to Annex A for 'H' location requirements)

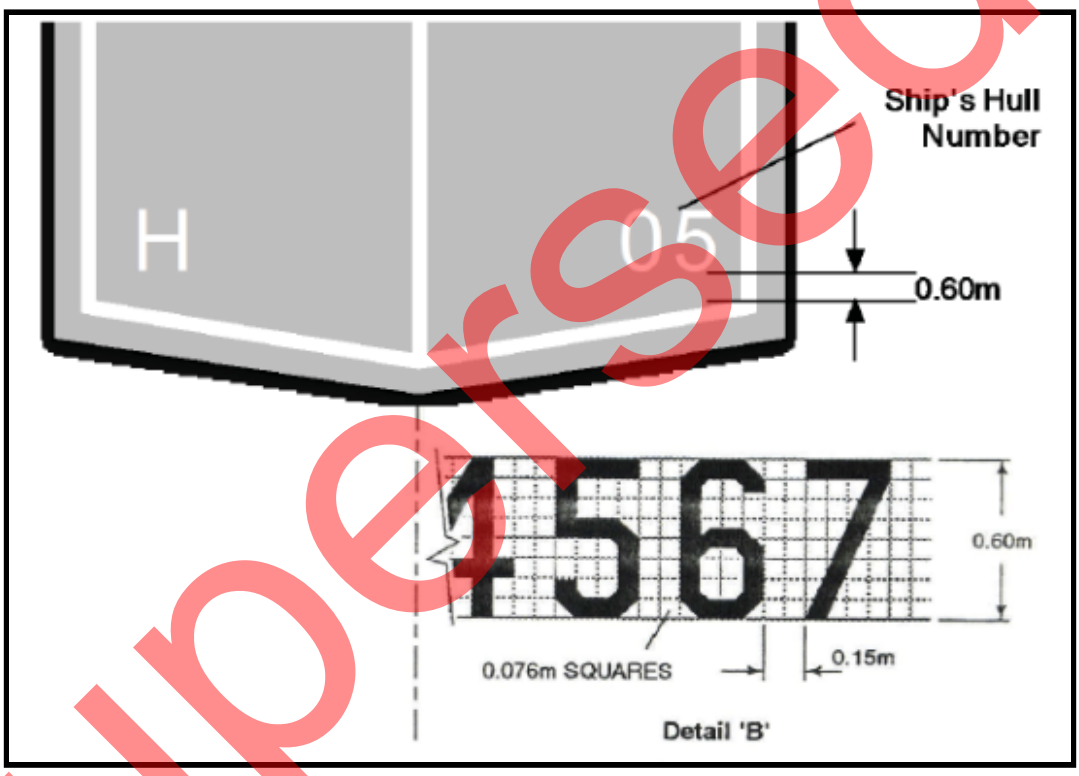


Figure 4 - Typical Marking of Hull Numbers (Detail B is applicable to ships with single spot operating areas e.g. DDG & FFH)

4.78. **Deck Strength Criteria.** The flight and hangar deck structure shall withstand all loads with aviation operations including landing, parking, traversing and crash loads imposed as a result of the aviation operations for which the vessel is to be certified. This includes elevators, hatches, covers etc when they are part of the aircraft landing, parking, hangar or traversing areas. There shall be no evidence of excessive deformation, deterioration or corrosion, and the welding shall be smooth and even. The design standard to be adopted shall be in accordance with DEF(AUST)5000 Volume 3, Part 1 Hull System Requirements, Surface Ship Structure for all aircraft types for which the ship is to be certified to operate.

Superseded

Surface Friction Requirements

4.79. Deck friction for new deck coatings shall meet a coefficient of friction of 0.8, and shall comply with the requirements of STANAG 1278.

4.80. Although STANAG 1278 is applicable to measurements on dry flight deck, RAN vessels shall also comply with this requirement for wet flight decks.

4.81. Specifications for paint are detailed at DEF(AUST) 5000 Volume 3, Part 4.

4.82. The flight decks shall be tested for friction factor after initial application of the deck coating

Flight Deck Safety Nets

4.83. **Obstructions.** Flight deck nets shall be hinged in such a manner that a level or positive angle above the horizontal is achieved with no part of the nets being more than 110 mm above flight deck level when in the lowered position.

4.84. The nets shall be lockable in the lowered positions.

Aircraft Operating Area Access/Egress

4.85. Aircraft operating areas (flight decks, VERTREP and transfer areas) shall have a minimum of two access/egress routes so that in the event of an accident or incident, personnel will be able to escape upwind of the landing area. Access routes shall also facilitate access by CRFF teams.

4.86. Adequacy of the flight deck emergency response and escape arrangements shall be included in any evacuation, escape and rescue analysis.

Helicopter Securing Fittings (Tie-Down Fittings)

4.87. The flight deck area shall provide the means to safely secure aircraft to the deck.

4.88. **Strength.** The strength of ship tie-down fittings shall be designed so that the structure shall not yield before the lashing breaking load is reached, including the case where up to two lashings are applied simultaneously. Standard lashings are assumed to be TD1A/B lashings, each with a nominal safe working load (SWL) of 10 000 lbf, and minimal proof load of 1.5x SWL in accordance with ANP4412-4314-1, Chapter 7. NAVSEA Drawing 803-1916300 is an acceptable standard.

4.89. **Integrity Testing.** Tie-down fittings shall be installed and tested in accordance with the design standard used or a qualified Weld Procedure Specification.

4.90. **Mounting**. The tie-down fittings shall be recessed to comply with the obstruction limitations detailed at Annex A.

4.91. **Compatibility.** All fittings shall be compatible with the tie-down assembly and lashing in use in the RAN.

4.92. **Location.** Tie-down fittings shall be installed throughout the aircraft landing area.

Superseded

4.93. **Spacing.** Spacing shall be between alternate intersections of a 1.1 m grid. Fittings on other grid patterns or variations due to interferences should be acceptable provided their arrangement allows for maintenance of effective lashing patterns for all aircraft to be operated.

Flight Deck Equipment

4.94. **Mooring Aids.** Mooring aids (tie-downs) for aircraft securing shall meet the requirements of the aircraft certified for aviation operations and the approved lashing scheme analysis for the ship's tie-down point pattern (see paragraph 4.92). Indicative numbers of tie-downs required per aircraft shall be found in the aircraft chapters of ANP 3300. Mooring aids quantities shall be included in the ship's Outfit Allowance List (OAL). Numbers of tie-downs held on-board shall consider operating the flight deck with other aircraft while all organic aircraft are stowed.

4.95. **Flammable Liquids.** No flammable liquid (gasoline, oil etc) cans, drums or tanks are permitted within 7.6 m of the flight deck periphery line markings.

VERTREP and Transfer Operations

4.96. **VERTREP and Transfer Operations in an Air Capable Ship.** VERTREP and transfer operations in an air capable ship are normally carried out to the flight deck, and the same facilities are used as for normal flight operations. For the VERTREP facilities, co-located with the Flight deck – requirements for VERTREP in this DASDRM chapter apply.

4.97. Some ships may have a VERTREP and/or transfer area remote from the flight deck. DASA has determined that independent assurance for dedicated VERTREP or Transfer-only facilities do not warrant DASA's independent assurance. However as many requirements share a number of commonalities and relationship with requirements within the scope of DASA's assurance. This chapter of DASDRM will maintain benchmark requirements for the design of such facilities, even if they are not subject to the Authority certification.

4.98. For VERTREP or Transfer-only area design requirements regarding markings, clearance and lighting from MPP-02.3.3 Vertical Replenishment (VERTREP) Operating Areas, Marking, Clearances, and Lighting, are to be used as the benchmark.

4.99. Additional to the requirements for markings clearance and lighting. Depending on the scope of intended vertrep operations, other requirements from this chapter (e.g. navigation, communication and control) may also be used as a benchmark for the design.

Landing aids

Lighting and Visual Approach Equipment

4.100. A basic standard of lighting shall support the safe conduct of aviation operations at night (i.e. Level I and II) in all air capable ships.

Superseded

General Lighting Adjustment and Balance

4.101. Aviation lighting used to orient the pilot and assist in conducting accurate operations about the ship (e.g. deck wash lighting, strip lighting, floodlighting etc.) shall be adjustable (ie have a dimming function) to account for variations in ambient lighting, visibility and pilot preference.

4.102. Each light system shall be individually adjustable for the purpose of achieving a harmonious balance amongst all aviation lights during night and NVD operations.

4.103. Lighting designed for long-distance viewing (3-5 nm) shall be designed such that it is not too bright when viewed in closer proximity, and shall not require manual adjustment to achieve this balance.

4.104. **Long Range.** The overall lighting configuration of the ship (including obstruction lights, navigation lights and specific aviation lights) shall be designed so that a typical pilot can coarsely ascertain the ship's orientation from approximately 3-5 nm.

4.105. **Medium Range.** From approximately 0.5 nm, the lighting shall aid the pilot in ascertaining the ship's orientation and enable identification of major features such as the flight deck and forward superstructure, as well as identifying major flight deck markings such as the lateral line-up line and fore/aft position line.

4.106. **Close In.** While in the flight deck environs, the pilot shall clearly be able to identify the deck edge, lateral line-up line, including vertical lateral line-up line/s and fore/aft position line, as well as seeing hangar features and finer textural detail on the flight deck such as tie-down points. If the pilot is using Night Vision Devices (NVDs), then the NVD lines shall also be clearly visible.

Homing Beacon

4.107. A white homing beacon shall be located as high as practicable on the mast/superstructure. It shall be visible for at least 330 degrees in azimuth and produce approximately 90 flashes per minute. The beacon shall be capable of being dimmed but the flash rate is to remain constant regardless of the light intensity. The minimum visible range on a clear night shall be 6 nm.

Horizon Reference System

4.108. For ships with an aft flight deck, a Horizon Reference System (HRS) shall be installed to provide a representation of the position of the horizon to assist the pilot to recover to the deck at night. The HRS shall be stabilised for roll angles of at least 15°.

4.109. The HRS shall be installed just forward of the flight deck so that it is approximately level with the pilot’s eye line when the aircraft is hovering over the deck.

Glide Slope Indicator

4.110. A gyroscopically stabilised glide slope indicator (SGSI) shall be installed on the extended axis of the preferred approach. The SGSI shall conform to the requirements of STANAG 1236. The SGSI shall be a Type NVD-YGR (detailed in STANAG 1236(4)). The centre of the green band (glide slop) shall be 3° above the horizontal with the projection pattern illustrated at Figure 5.

Superseded

4.111. When more than one night approach path to the flight deck is required, the SGSI shall be trainable to align with all approach paths.

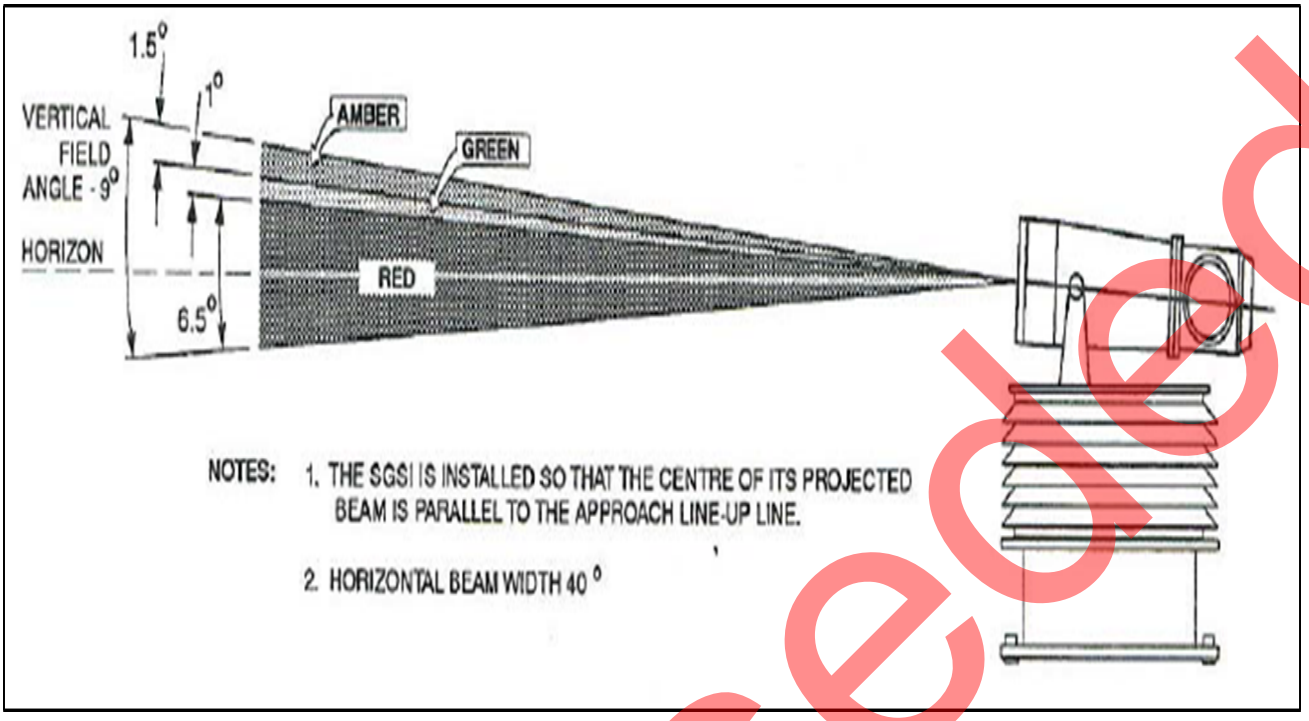


Figure 5 - Stabilised Glide Slope Indicator

Obstruction Lights

4.112. A minimum of two blue lights shall be installed to mark both the top and outboard limits of shipboard structures closest to the operating area. The lights shall be controlled by a single ON/OFF switch. Dimming shall not extinguish the lights.

Level III Operations – All Ships

4.113. For Level III (three) daylight operations, a deck status light system and emergency wave-off light system shall be installed. Where the aircraft is expected to be maintained overnight, maintenance floodlighting (fixed or portable), shall be available.

Deck Status Light System

4.114. The deck status lighting system shall convey the status of the flight deck through a combination of lights, symbols and/or flashing in accordance with one of the systems detailed in STANAG 1472; however, the system described in Annex B of STANAG 1472 is preferred by the RAN (Steady Three Colour Light With Symbology Status Display)

4.115. The status indication shall be clearly visible in direct sunlight, but also dimmable for night and NVD operations, however the dimming shall not extinguish the lights.

4.116. The NVD compatibility and intensities detailed in STANAG 1472 shall be complied with.

Superseded

4.117. Controls shall be provided at the HCO/LSO/FDO to enable the operator to select the deck status system to red, amber or green. Selection of red, amber or green shall be mutually exclusive.

4.118. A deck status repeater shall be included on the Bridge and AC display/control consoles. This repeater represents the deck status as selected by the HCO/LSO/FDO.

Emergency Wave-Off Light System

4.119. A wave-off function shall be implemented to provide an indication to the pilot to abort the approach. The wave-off indication shall be clearly visible in direct sunlight, but also dimmable for night operations, however the dimming shall not extinguish the lights. Ranges shall be applicable for the hazards that wave-off shall be initiated to control (for example greatest RADHAZ range).

4.120. For commonality with existing RAN systems, the wave-off lighting should be implemented by two red wave-off lights located adjacent to and on either side of the SGSI, in conjunction with flashing of the red deck status light.

4.121. Alternatively, wave-off functionality could be achieved by alternative lighting systems (such as a flashing Pilot Information Display (PID) and/or flashing red deck wash / strip lights) provided that the indication is unambiguous and visible by day and night. Flashing rates required for NVD compatibility shall not coincide with flashing rates of either the SGSI or PID.

Ship Motion Parameters

4.122. Ship motion displays for aviation operations shall display ship's pitch and roll attitude as a minimum.

4.123. Dynamic pitch and roll should also be displayed by subtracting trim from absolute pitch and subtracting list/heel from absolute roll. Trim is calculated by averaging pitch over a configurable time period. Similarly, list/heel is calculated by averaging roll over a configurable time period.

4.124. **Ship Motion Measurement.** Pitch and roll indicators shall be accurate to ±0.25°, with a display resolution of 0.1°, and angular range of ±45°.

4.125. **Ship Motion Limits Monitoring.** Ship motion displays shall include a capability to set desired pitch and roll limits. When the pitch and roll limits are exceeded, the display shall provide a visual indication to the operator that the limits have been exceeded and what the maximum pitch and roll was. If dynamic motion limits are employed, then it shall be possible to set dynamic limits and display exceedance of the limits.

4.126. The ship motion display shall display historical motion and limit exceedance for a configurable time period between one minute and 10 minutes. The system may provide the ability to record ship motion for 24 hours.

Wind Speed and Direction System Displays

4.127. Relative wind displays shall display the average wind speed and direction over a 10- second moving average.

Superseded

4.128. Relative wind displays should display the instantaneous relative wind speed and direction based on a one-second average. Such a display shall also include a history of the previous 10 seconds of instantaneous wind.

4.129. The display of relative wind shall include a numeric display of the 10-second moving average as well as a relative wind plot showing the average and instantaneous relative wind.

4.130. The relative wind display should provide the time-averaging period.

4.131. The relative wind display shall provide a clear indication of which anemometer (or algorithm) is used as the data source.

4.132. The relative wind display should overlay the wind speed and direction display with the approved relative wind envelope to improve the ease of determining whether the relative wind is within limits prescribed in the SHOL. This can assist operators in determining ships course and speeds that will place relative winds within SHOL.

Anemometers

4.133. **Anemometer Accuracy.** Anemometer sensors used in the Wind Speed and Direction System (WSDS) shall have a speed accuracy better than 3% and a directional accuracy of ±5°. The operating range shall be as per DEFAUST(5000) Vol 10, Part 2, paragraph 5.4.4.1, i.e. from 0.5 to 60 m/s.

Anemometer Placement

4.134. Anemometers shall be positioned in clear air above the ship's superstructure and outside the influence of the ship's air-wake.

4.135. If the location does not provide an unobstructed airflow throughout all azimuths (i.e. 360°), then two or more anemometers shall be mounted. Larger ships may require additional anemometers further aft to detect winds abaft the beam.

4.136. Anemometers sited on masts shall be in free air, in a location uncluttered by adjacent equipment with at least 3.0m radius free air space around each anemometer.

4.137. Anemometers shall be positioned so that they are not subject to electromagnetic interference from ship's emitters.

Course and Speed

4.138. Ship's course and speed displays shall be available at specified stations as per Table 4 (located at para 4.154). The operator should be able to select between either speed through the water (log speed) and heading from the ship's gyro, or GPS speed and track.

4.139. The course, speed and position navigational accuracy requirements shall be in accordance with DEF(AUST) 5000 Volume 10 Part 2.

Superseded

QNH

4.140. A reading of QNH (atmospheric pressure—Q at Nautical Height) in Hectopascals shall be available at specified stations as per Table 4. QNH may be sourced from a calibrated ship-based barometer as per DEF(AUST)5000 Volume 10 Part 2 (which, in turn, refers to WMO Publication 08), or from an airfield weather station report that is valid for the time and location of the ship.

Outside Air Temperature

4.141. A reading of Outside Air Temperature (OAT) in degrees Celsius shall be available from the ship-based weather station as per DEF(AUST)5000 Volume 10 Part 2 (which, in turn, refers to WMO Publication 08).

Signalling Aids

4.142. Signalling aids shall be stowed adjacent to the FDO/FDM position:

(a) **Day Signalling.** The FDO/FDM shall use hands or marshalling bats to conduct day signalling.

(b) **Night Signalling.** The FDO/FDM shall use two battery-powered wands to conduct night signalling with a spare wand available. The wands shall be NVG friendly in accordance with DEFSTAN 02-587, and all three wands shall be the same colour.

Navigation and Tracking Aids for Level I and Level II Certification

4.143. In general terms, the aids for Level I aviation operations shall satisfy the following three requirements:

(a) Assist aircraft navigating to the ship from a long range.

(b) Allow aircraft to make an instrument approach to the ship.

(c) Allow the ship's command team to maintain situational awareness of air assets in the vicinity of the ship.

4.144. The required navigation and tracking equipment function and performance characteristics as detailed in Table 2 shall be provided to support Level I or Level II aviation operations as part of a Shipborne Heliport Certification. A ship system may comprise of combined sensors/systems to provide the detection and recovery requirements as specified. Systems shall be proven to work in envisaged operating conditions (including varying levels of precipitation and sea state) based on the vessels envisaged scope of operations.

4.145. For Level I certification, flight testing shall be conducted with representative aircraft types and number of aircraft to confirm that the system can achieve the requisite performance and functionality.

Table 2 - Navigation Equipment for Level I and II Operations

	NAVIGATION	SEPARATION	INSTRUMENT APPROACH

Superseded

Level I	**Mandatory** Ship radar system to detect aircraft from at least 20 nm and 1000 ft and 10 nm at 400 ft from all azimuths. Maintain consistent contact with aircraft as aircraft nears the instrument approach gate (2 nm, 400 ft). Plus, **at least one** of the following: • Aircraft UHF homing • Direction Finding • Aircraft radar • Aircraft Tactical Data System • Ship Homing beacon • Aircraft TACAN receiver and ship TACAN transmitter • Local positioning system • Aircraft FLIR • Aircraft NVD • Aircraft GPS It is **desirable** to have these items fitted	**Mandatory** Ship radar system must be able to maintain track of helicopters within the SCZ. Typically 0.5-2 nm at 200-400 ft, and 0.25-0.5 nm 100-200 ft System must have the ability to maintain multiple tracks in the SCZ (the number to be defined by the envisaged scope of operations) System should be able to display individual contacts as designated by the operator. **Desirable** • Aircraft radar • Aircraft Tactical Data System • Aircraft NVD • All aircraft fitted with air-to-air TACAN	**Mandatory** Radar tracking to be maintained from the gate (2 nm, 400 ft), top of decent (1.2 nm, 400 ft), through decent to the missed approach point (0.2 nm, 125 ft). Coverage to ±20° of approach path, as well as steep or shallow approaches. Maintain tracking through missed approach (possible less than 125 ft) to 400 ft. Maintain tracking during ELVA approach. Plus, **at least one** of the following: • Aircraft radar • Second radar, with performance as described above • Aircraft TACAN receiver and ship TACAN transmitter • Local positioning system (provided there is an instrument approach that has been approved with such a system)
Level II	**Mandatory** • Radar as described above OR • Aircraft UHF Homing	**Desirable** • Radar as described above • Aircraft radar • Aircraft Tactical Data System	**Desirable (night visual approach may be conducted)** • Radar as described above • Aircraft radar • Aircraft TACAN receiver and ship TACAN transmitter

Superseded

	OR • Aircraft GPS **Desirable** • Aircraft Radar or LF/VHF/ UHF homing (if not in mandatory equipment) • Aircraft Tactical Data System • Local positioning system • Ship Homing beacon • Aircraft TACAN receiver and ship TACAN transmitter • Aircraft FLIR • Aircraft NVD	• Aircraft NVD • All aircraft fitted with air-to-air TACAN	• Local positioning system

4.146. **Identification Friend or Foe (IFF)**. A ship certified to Level I aviation operations shall have an identification friend or foe (IFF) interrogator capable of interrogating in Modes 1, 2, 3, C 4 and 5 (Level II) certified to either US AIMS 1000B Standards suite or NATO STANAG 4193. The helicopter control display shall be capable of displaying all modes and emergency IFF codes. Trials and periodic tests of the equipment shall be conducted in accordance with ANP 3412-4202.

Recovery Assist, and Securing System

4.147. Where an operational requirement exists, a system shall be provided that assists in the recovery of the aircraft and/or secures the aircraft to the flight deck upon recovery or prior to launch.

4.148. Wire recovery systems shall comply with requirements of MPP 02(H) Annex A013. Harpoon systems shall comply with the requirements of MPP02(H) Annex A014 and STANAG 1276.

Superseded

4.149. For ships requiring Level I (one) and II (two), Class 6 (HIFR) certification, three heading lights shall be installed in accordance with Figure 6. The HIFR heading lights shall be controlled by a single dimmer control and on/off switch. The maximum distance between the HIFR 'H' and the aft-most HIFR heading light shall be 75 m ('E', as specified on Figure 6).

4.150. HIFR heading lights shall be installed as far to port as feasible. All three lights shall be the same distance from the ship's centreline and shall be simultaneously visible to the pilot during the refuelling phase of the HIFR operation. The pilot is positioned opposite the hose pick-up spot at approximately 9 m to the port side of the ship at a height of 18 m. All three HIFR heading lights shall be the same distance above the ship's base line. All HIFR heading lights shall be installed between 6 m to 7 m above the HIFR deck.

4.151. If HIFR heading light(s) extend into the firing sector of the ship's guns and/or missiles, the light(s) shall be installed on a portable support.

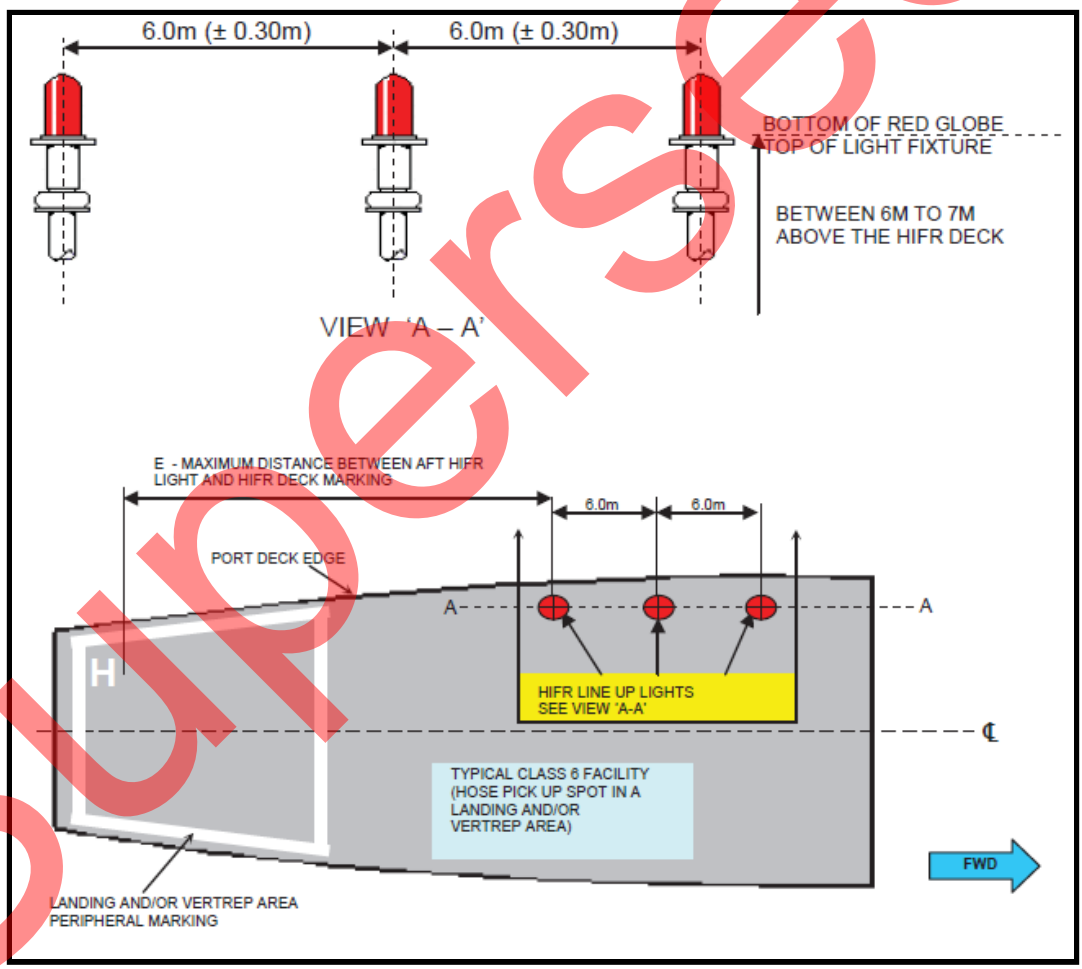


Figure 6 - Typical Arrangement of Visual Aids for HIFR Areas

Superseded

4.152. **Fuelling System Requirements for HIFR.** The helicopter in-flight refuelling (HIFR) fuel system shall provide a minimum flow rate of 230 l/min at a height of 65 ft above sea level, providing 50 psi at the refuelling nozzle. A lesser flow rate and pressure, as per STANAG 3847, may be acceptable provided that the system can refuel an aircraft in a timeframe that is operationally acceptable.

Aviation Station Configuration

4.153. Aviation stations shall be provided to support the ship's staff involved in control of the aviation evolution as defined in ANP 3300 (principally HCO, AC, LSO, FDO, FDM, and HD). Table 3 shall be used to determine the aviation station configuration that is appropriate to the intended Level and Class of operation.

Table 3 - Aviation Station Configurations

	Level I				Level II				Level III			
	Class				Class				Class			
Aviation Station Configuration	**1,2,3**	**4,5**	**6**	**7**	**1,2,3**	**4,5**	**6**	**7**	**1,2,3**	**4,5**	**6**	**7**
Bridge, AC, HCO, LSO (RAST Operations)	X	X	X	X	X	X	X	X	X	X	X	X
Bridge, AC, HCO (No RAST, but maybe ASIST)	X	X	X	X	X	X	X	X	X	X	X	X
Bridge, HCO					X	X	X	X	X	X	X	X
Bridge, FDO					p	p	p	p	X	X	X	X
VERTREP Only Control Station						f				X		
Transfer Only Control Station								X				X

Notes

p – it is possible to conduct Level II operations with just a Bridge and FDO, but this is not

Superseded

recommended

f – night VERTREP is presently only conducted in specific circumstances by RAN

Aviation Station Equipment

4.154. Table 4 stipulates the minimum required equipment at each of the aviation stations for helicopter operations.

Table 4 - Aviation Station Equipment

Equipment	Helicopter Control Station (HCO/LSO/FDO)	Bridge	Aircraft Controller Station	VERTREP/ Transfer Control Station
Ship Motion Display	Required	Required	Required	Required
Relative wind speed and direction	Required	Required	Required	Required
Course and speed displays	Required	Required	Required	Desirable
QNH and OAT available	Required		Required	
Lighting controls for flight deck and the associated aviation lights, such as the homing beacon and HIFR line-up lights (including lighting intensity controls)	Required			
Controls for deck-status display	Required			
Deck-status display status so that the OOW/OPSO maintains situational awareness of aspects that may impact on the safety of the ship.		Required	Required	
Controls (and display) for the emergency wave-off.	Required	Required	Required	
If the ship does not have a dedicated emergency wave off switch, then the equivalent functionality shall be provided by having override control of Deck Status indication to		Required	Required	

Superseded

change from ‘approved’ to ‘not-approved’.				
Fuel emergency stop	Required			
Crash-on-deck alarm control	Required	Required	Desirable	Desirable
A means of displaying SHOL	Required	Required	Required	Desirable
A means of determining ship course and speeds that will place relative wind within SHOL.	Desirable	Required	Required	
CCTV Displays	See 4.28	See 4.28	See 4.28	See 4.28
CCTV Camera Control	Required			
CCTV Recorder Control	Required			
Command Request and Approval System	Required	Required	Required	
Communications equipment	Required	Required	Required	Required

Control Station Field of View

4.155. **Helicopter Control Station (HCS) Field of View.** The HCS shall be located so that the operator can view both the aircraft and the aircraft operating area without moving away from the controls. The view from the position shall be unobstructed and include all flight deck areas normally occupied by personnel during flight operations and all of the aircraft during approach, hover, landing and take-off.

4.156. **Landing Safety Officer Station Field of View.** In addition to accommodating RAST/ASIST controls, the Landing Safety Officer (LSO) control station shall be located so that the RSD/helicopter main probe interface, hook-up team and traversing crew can be viewed from the LSO station. The use of a CCTV camera system to display live video of the RSD/helicopter main probe interface may be permitted.

4.157. **VERTREP Control Station Location and Field of View.** A VERTREP Control Station (VCS) shall be provided outside the periphery line markings of the VERTREP area, but from where the Helicopter Director (HD) shall have a clear view of the VERTREP area and the aircraft involved in the operation. The VCS shall be located such that it has ready access to the VERTREP area.

General Display Requirements

4.158. Displays shall be collocated as far as practicable, with the layout based upon a compromise of importance (safety), frequency of use, and logical grouping.

Superseded

4.159. Display panels shall be visible from the operator's normal operating position and orientation.

4.160. All displays shall have a wide adjustment of brightness in order to be readable from bright sunlight conditions down to very dark conditions.

4.161. If used at night, displays or control lighting in the Bridge, Landing Safety Officer (LSO) Station, FDO/FDM Station and Helicopter Control Station (HCS) shall comply with NVD Compatibility requirements for Category 'C' lights as defined in DEFSTAN 02-587.

4.162. Human factors design shall comply with DEF(AUST)5000 Vol 06 Pt 02 Sec 03.

General Control Requirements

4.163. All controls, indicator lamps, switches and switch positions shall be identified by appropriate nameplates or engraving, or graphical user interface (GUI) equivalent.

4.164. Dimmer/brightness controls for lights shall be designed to operate in a logical manner (e.g. to increase intensity rotate control knobs clockwise or slide upwards for a sliding control).

4.165. Switches and controls shall be operable with or without gloves (anti-flash).

General Requirements for Stations on Weather Decks

4.166. If the station (FDO/FDM, VERTREP, Transfer) is located on a weather deck, then:

(a) The control panels shall be watertight.

(b) Any displays shall be sunlight-readable.

(c) Any controls or equipment shall be secured so as not to create a Foreign Object Damage (FOD) hazard.

General Compartment Requirements for Aviation Stations

4.167. Area lighting in the HCS, LSO Station and Bridge (where the pilot may see the Bridge during approach) shall comply with NVD Compatibility requirements for Category 'C' lights as defined in DEFSTAN 02-587. This ensures that lights emanating from windows shall not degrade NVD images for aircrew, but also facilitate the use of NVDs by the HCO or deck staff, if desired.

4.168. Windows shall incorporate windscreen wipers, demisting and tinting consistent with the requirements of the Bridge windows detailed in DEF(AUST)5000 Volume 10, Part 2, paragraph 5.6.4.

Lighting Controls

4.169. The Helicopter Control Station shall include controls for all aviation lights and visual aids (such as SGSI), including intensity controls.

Superseded

Aircraft Controller (AC) Station

4.170. A dedicated AC control position shall incorporate a suitable helicopter control radar display. The display shall be integrated to the ship's Combat Management System located in the Operations Room. As a minimum, information shall include ship course and speed, ship position, helicopter identification, helicopter position and helicopter range and bearing to own ship. If available height shall also be displayed.

4.171. The display shall be equipped with suitable overlays or have an operator input facility for projection of standard helicopter approach patterns.

Explosive ordnance and flammables

4.172. **Forward Firing and High Explosive Weapon Loading.** Risks analysis associated with operating of forward firing and high explosive ordnance shall be conducted in accordance with eDEOP101 Reg 5.4 to define design requirements.

4.173. **Magazines and Ready Use Magazines.** Magazines and ready-use magazines of locker size shall not be located on exposed decks within the helicopter clearance envelope/s (Annex A). Ship's Helicopter Operating Instructions shall specify that all weather-deck ammunition magazines and ready-use lockers in the vicinity of the aircraft operating area shall be closed during helicopter operations. Requirements of DEF(AUST) 5000 Vol 6 Pt 05 Sect 03 shall be adhered to for magazine and ready use magazine design.

RADHAZ

4.174. **RADHAZ.** Emitter systems (RADAR, Communication, Laser systems) that may be hazardous to aircrew and aircraft shall comply with DEF(AUST) 5000 Volume 2 Part 11, ANP4411-1314 and AECP-2(C). Software RADHAZ controls shall also meet the requirements of DEF(AUST) 5000 Vol 2 Pt 14.

Aviation incident response

Safety and Rescue Facilities

4.175. **Flight Deck Crash Rescue Equipment.** Equipment shall be readily available at the flight deck of all air capable ships for the conduct of emergency rescue operations in support of aircraft which have crashed. Equipment scales are laid down NAP 7002.002-2M and ANP 4316.

Ditched Aircrew Rescue

4.176. **Crash Rescue Boat.** A ship's boat of inflatable, rigid inflatable or rigid hull design shall be designated as the crash rescue boat in all air capable ships.

4.177. All available ship's boats may be required for aircrew rescue. For the required speed of reaction, the designated crash rescue boat shall be immediately available and equipped for personnel rescue.

4.178. The crash rescue boat's minimum equipment requirements are listed in ANP 3300.

Superseded

4.179. The crash rescue boat shall be able to operate to the maximum sea state in which all required aircraft can conduct operations to the ship.

Crash Alarm

4.180. An aircraft crash alarm shall be installed with an actuating switch at the HCS, LSO Station, FDO Station and Bridge. A crash alarm switch shall also be installed at VERTREP or transfer Control Stations when the Bridge does not have a clear view of the VERTREP or transfer area. The switch shall be a stand-alone item and shall be clearly identified 'CRASH ALARM'. The alarm shall sound at all broadcast and alarms system speaker locations.

Control Stations and Windows Overlooking the Flight Deck

4.181. Control Station Bulkheads and Windows overlooking the flight deck shall be ballistic-resistant for the purpose of protecting occupants in the event of a helicopter crash. The ballistic protection characteristics shall comply with DEF(AUST) 5000, Volume 7, Part 23, Section 5, with aviation control stations for all ship types being classified as 'High Value Compartments' on Platform Type A ships to ensure fragment mitigation is included.

4.182. For windows mounted within the Flight Deck area (e.g. RAST Control Station) the window and frame structure shall be as a minimum, equally as strong in all respects as its deck surrounding structure.

Superseded

ANNEX A - OBSTRUCTION CLEARANCES

Obstruction clearances

Minimum Clearance Requirements for Single Spot Air Capable Ships

4.A.1. **Clearance Criteria for Landing and Launching Operations.** For a ship to be cleared and certified to land and launch a helicopter, certain minimum clearances within defined clearance areas and approach flight paths are required and shall be assessed separately for each helicopter type under consideration. The clearances given in this section are the minimums allowed for safe operations. Newly-designed flight-decks should aim for greater clearances than the minimum to promote safer and more capable aviation operations at sea.

4.A.2. **Scatter.** The obstruction clearance criteria described in this section is based upon the concept that during helicopter operations to ships, the helicopter position will vary each time from what may be considered an ideal approach/departure profile and landing position. The scatter may be classified into an airborne phase and a landing phase. The airborne phase applies during the approach to and departure from a point above the touchdown position. The landing phase applies to aircraft touching down on the flight deck.

4.A.3. **Airborne Scatter.** This is an allowance for deviation of the helicopter from the optimum flight path whilst positioning for landing or departing after take-off. The airborne scatter distance is determined by the rotor diameter of the helicopter. The scatter is applied along the fore-and-aft axis of the flight deck centreline; however, the associated clearance volume is considered to extend laterally to represent the aircraft transitioning left or right for departure (or for landings applicable to lateral approaches). The airborne scatter is defined in Table A-1 Airborne Scatter below.

Table A-1 - Airborne Scatter

Rotor Diameter	Airborne Scatter	
	Single Spot	Multi Spot
Up to 12.0 m (39 ft)	3.0m (10 ft)	2.4m (8 ft)
12.01 to 15.0 m (49 ft)	3.5m (12 ft)	2.7m (9 ft)
Over 15.01 m (49 ft)	4.5m (15 ft)	3.0m (10 ft)

4.A.4. **Landing Scatter.** This is an allowance for deviation of the helicopter from the optimum flight path immediately prior to touchdown and immediately post lift-off. The landing scatter distance is determined by the maximum AUW of the helicopter. It is applied along the fore/aft and lateral axes of the flight deck centreline. Table A-2 Landing Scatter defines the landing scatter.

Table A-2 - Landing Scatter

Maximum AUW	Landing Scatter

Superseded

	Single Spot	Multi Spot
Up to 5400 kg (12 000 lb)	2.4 m (8 ft)	1.8m (6 ft)
5400 kg (12 000 lb) and Above	3.0 m (10 ft)	2.4 m (8 ft)

4.A.5. **Heading Error.** Heading error is an allowance for deviation of the helicopter from the intended landing heading. It is superimposed on landing scatter to calculate all possible wheel landing positions. For all helicopters, the heading error is ±20°. Heading error shall be calculated using the main rotor centre as the point of rotation (or designed Yaw pivot point if different).

4.A.6. **Areas and Volumes.** The system for determining obstruction clearances involves four different areas. Each area has allowable obstruction heights. The approach to conceptualising the areas is to define a clearance volume that commences at a prescribed height above the flight deck and extend upwards. By applying such a volume to an existing 3D model of a ship, the compliance finder shall establish if there is an overlap between an obstruction and the clearance volume (ideally, there should not be any incursions into the clearance volume). The 'datum' for the construction of the volumes is the 'reference position'.

4.A.7. **Reference Position.** The reference position is the intersection of the fore/aft position line (also known as the Pilots Eye Line—PEL, or bum line) and the lateral line-up line painted on the flight deck. The pilot's eye line shall pass through the fore/aft position line, and the aircraft shall be centred on the lateral line-up line.

4.A.8. **Touchdown Clearance Area (TCA).** The Touchdown Clearance Area is that area of the flight deck within which the landing gear of a helicopter shall alight. It is centred on the optimum landing position, includes allowance for landing scatter and heading error, and ensures clearance from obstacles for the landing gear. Where essential and to the benefit of flight operations, obstructions to a maximum of 25 mm in height are permitted provided that they are contoured or faired and are shaped in such a fashion that they do not provide a hazard to aircraft wheels or to personnel. A top view of an MRH90 TCA on a generic flight deck is shown at Figure A-1 (A). (The base of the volume is 25 mm above the flight deck).

NOTE: *The deck edge is also considered to be an obstruction.*

4.A.9. **Fuselage Clearance Area (FCA).** The Fuselage Clearance Area is that area of the flight deck outside the TCA for which adequate obstruction clearance is provided for the main rotor, fuselage and the most rear part of the fuselage (or tail rotor) likely to strike the deck. It is centred on the optimum landing position and includes allowance for landing scatter and heading error. Where essential and to the benefit of flight operations, individual deck hardware smoothly contoured to a required minimum slope of 1 in 3 and not exceeding 0.11 m in height are permitted. Slope material shall be capable of withstanding aircraft landing forces. Where fitted, deck wash lights shall be installed on or outside the periphery line markings as close as possible to the deck edge and the adjusted height shall not exceed 0.30 m. A top view of an MRH90 FCA on a generic flight deck is shown at Figure A-1 (The base of the volume is 0.11 m above the flight deck).

4.A.10. **Fuselage and Tail Rotor Swept Area (FTRSA).** This is the area outside the FCA swept by the fuselage and tail rotor whilst positioning for landing or departing after take-off, having allowed for airborne scatter in the fore/aft axis. The FTRSA extends laterally infinitely on any side that the helicopter may launch or recover from. If the helicopter is constrained in a particular direction, then the clearance area shall extend a distance to account only for airborne scatter. For stern approaches,

Superseded

the FTRSA is also swept from the reference position infinitely aft, with airborne scatter in the lateral axis. Obstructions shall not exceed 0.61 m in height. A top view of an MRH90 FTRSA on a generic flight deck is shown at Figure A-1 (The base of the volume is 0.61 m above the flight deck).

4.A.11. **Main Rotor Swept Area (MRSA).** This is the area outside the FTRSA potentially swept by the main rotor whilst positioning for landing or departing after take-off, having allowed for airborne scatter. The MRSA extends laterally infinitely on any side that the helicopter may launch or recover from. If the helicopter is constrained in a particular direction, then the clearance area shall extend a distance to account only for airborne scatter. For stern approaches, the MRSA is also swept from the reference position infinitely aft, with airborne scatter in the lateral axis. Obstructions shall not exceed one eighth of the main rotor diameter or 1.5 m, whichever is the lesser. A top view of an MRH90 MRSA on a generic flight deck is shown at Figure A-1 (The base of the volume is 1.5 m above the flight deck).

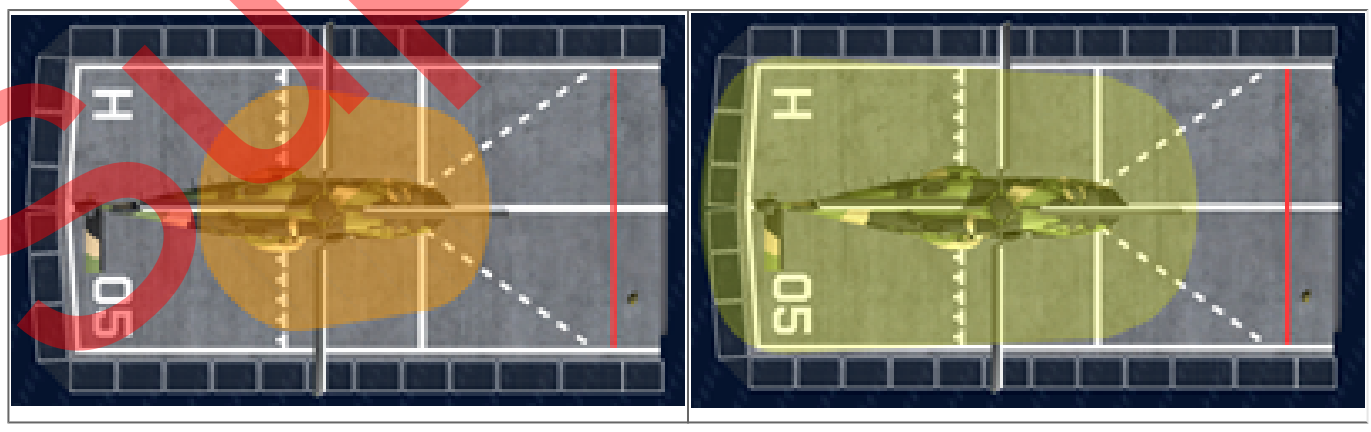
Obstruction Clearances - Other design considerations

4.A.12. The optimal location of the reference position shall be determined by balancing the clearance between the MRSA and forward obstructions, with the requirement to access the tail rotor with the helicopter landed in the extreme aft position. Other considerations, such as detailed in 4.A.12 and 4.A.13 may bias the reference position to be further aft as well as considerations for enabling room for the deck team to stand during manned flight deck launches and recoveries. However, operational and maintenance considerations (such as troop movements, traversing equipment, lashing patterns etc) may bias the reference position to be further forward. Finally, the size of the flight deck may preclude access to the tail rotor for maintenance, with the requirement depending on the operational intent of the ship (for example, if the helicopter is intended only for launch and recovery operations on the vessel and not permanent embarkation tail maintenance may not be required). In this case, the design of the reference position shall ensure that the TCA is contained within the flight deck, and that the TCA and FCA clearances are complied with.

4.A.13. With the aircraft in the reference position, the pilots' field of view shall not be restricted by the ship superstructure by more than ±30°.

4.A.14. There shall be sufficient clearance between the main rotor and the aft superstructure to avoid recirculation effects between the main rotor and the superstructure.

4.A.15. Considerations for deck width and the periphery line markings shall ensure the FCA is contained within the flight deck (including where pylons/wings are fitted to the helicopter). Deck width shall enable manual blade fold requirements for primary aircraft with manual blade fold.



superseded

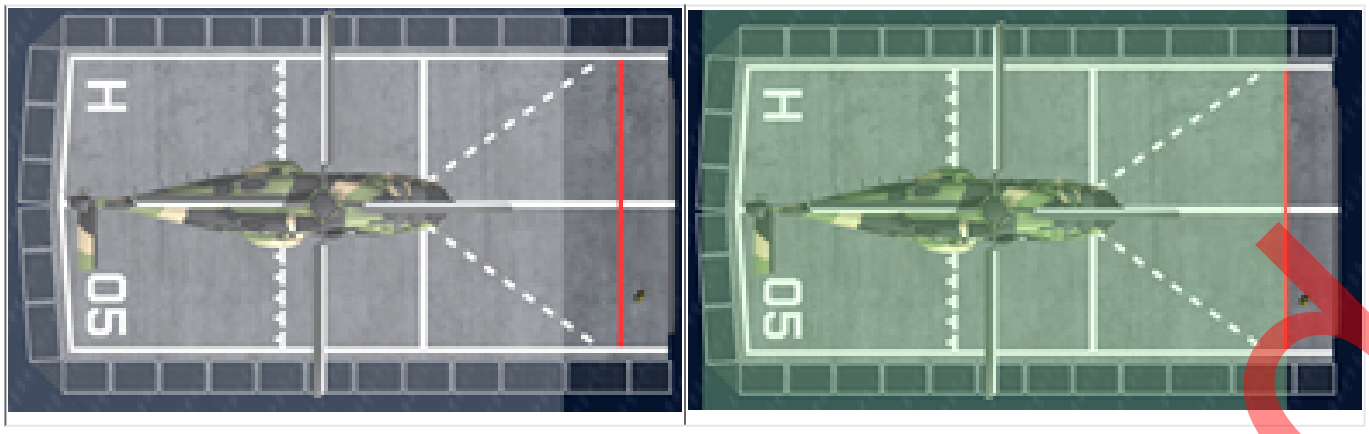


Figure A-1 - Component Landing and Swept Areas Figure

A) Touchdown Clearance Area (TCA)
B) Fuselage Clearance Area (FCA)
C) Fuselage and Tail Rotor Swept Area (FTRSA)
D) Main Rotor Swept Area (MRSA)

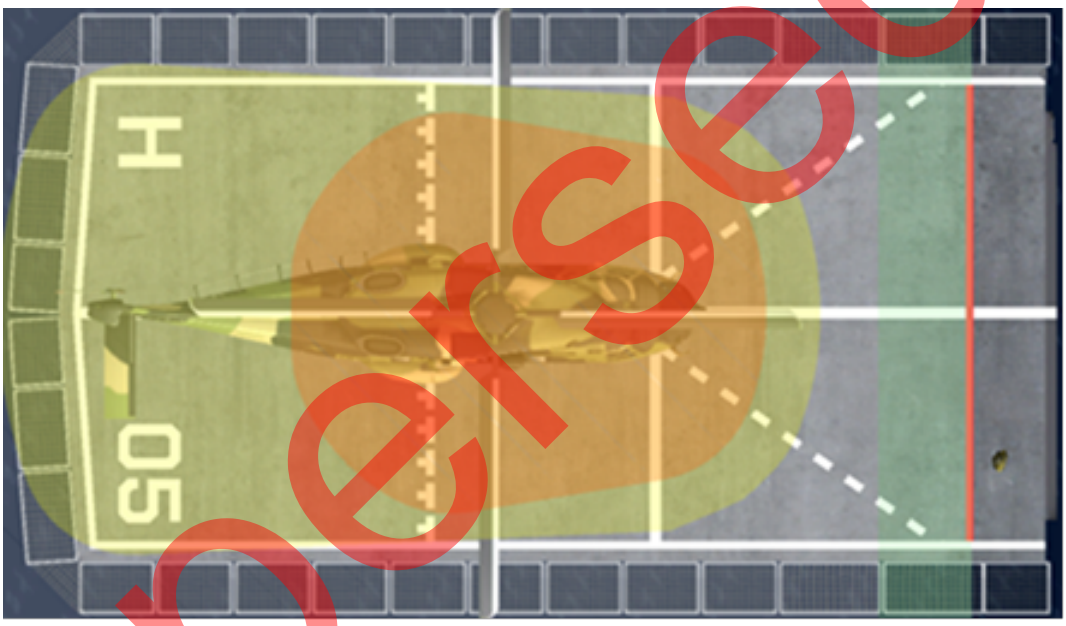


Figure A-2 - Combined Landing and Swept Areas

Figure A-3 - Combined Landing and Swept Areas – Side View

Superseded

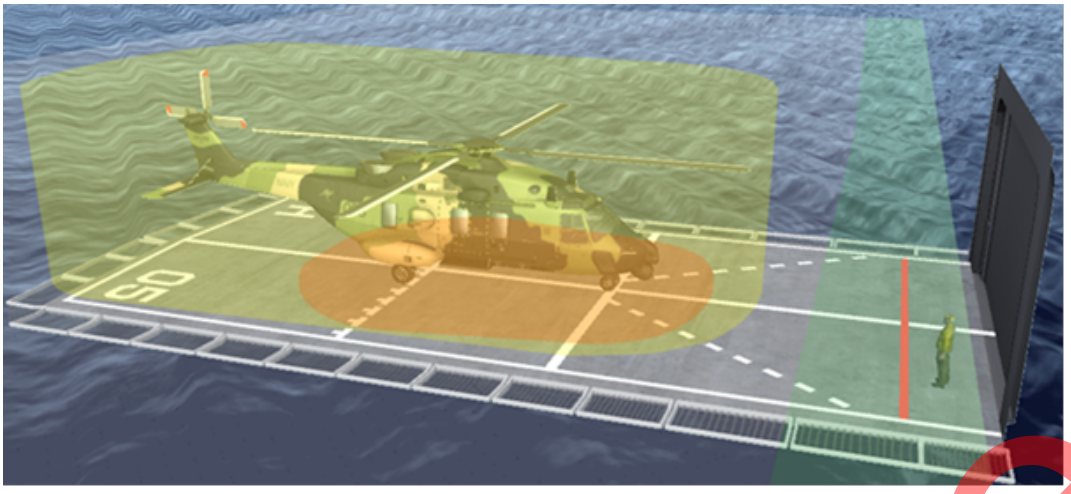


Figure A-4 - Combined Landing and Swept Areas – 3D View

4.A.16. VERTREP Obstruction Clearance Criteria. VERTREP obstruction clearances shall be based upon the four obstruction clearance volumes as detailed in Table A-3 Application of Clearance Volumes to VERTREP Clearances where the height of the aircraft is offset vertically from the deck by 0.61 m for Class 4 VERTREP and by 3.71 m for Class 5 VERTREP.

Type of VERTREP	Application Clearance Volumes
Type 1	Apply TCA and FCA whilst centred over the VERTREP area, apply landing scatter and ±20° heading error, with the aircraft aligned athwartships. Apply FTRSA and MRSA with airborne scatter with the aircraft aligned athwartships, running athwartships along the VERTREP line. Offset the FTRSA and MRSA clearance volumes upward by 0.61m for Class 4 VERTREP and by 3.71 m for Class 5 VERTREP. (This allows for 0.89 m of vertical scatter during VERTREP).
Type 2	Apply TCA and FCA whilst centred over the VERTREP area, apply landing scatter and heading error from ahead ± 90°. Apply FTRSA and MRSA with airborne scatter and heading error from ahead ± 90° with the aircraft aligned forward, along the VERTREP line (running athwartships) Offset the FTRSA and MRSA clearance volumes upward by 0.61m for Class 4 VERTREP and by 3.71 m for Class 5 VERTREP. (This allows for 0.89 m of vertical scatter during VERTREP).
Type 2A	As per Type 2, using alternative Tee-Ball-lines as reference.
Type 3	Apply TCA and FCA whilst centred over the VERTREP area, apply landing scatter and heading error equating to retaining gearboxes within T-lines (aircraft nominally aligned athwartships). Apply FTRSA and MRSA, apply landing scatter and heading error equating to retaining gearboxes within T-line, running athwartships along the VERTREP line.

Superseded

	Offset the FTRSA and MRSA clearance volumes upward by 0.61m for Class 4 VERTREP and by 3.71 m for Class 5 VERTREP. (This allows for 0.89 m of vertical scatter during VERTREP).

4.A.17. **Transfer Obstruction Clearance Criteria.** The minimum hover height for Transfer shall be determined based on a hover position that maintains the aircraft clearance volumes (TCA, FCA, FTRSA, MRSA) free from obstructions offset by winch height and a component for vertical scatter.

4.A.18. **Clearance Requirements for a Midships Landing Area.** The obstruction clearance criteria detailed in paragraphs 4.A.2 through to 4.A.5, and 4.A.6 through to 4.A.11 shall be applied to midships landing areas.

4.A.19. **Clearance Criteria for Dual Main Rotor Helicopters operating to a Midships Landing Area.** Similarly, the obstruction clearance criteria detailed in 4.A.2 through to 4.A.5, and 4.A.6 through to 4.A.11 shall be applied to dual main rotor helicopters operating to a midships landing area, although the tail rotor dimensions shall be replaced by the rear main rotor and aft fuselage.

4.A.20. **Clearance Criteria for a Forward Landing Area.** The clearance requirements for a midships landing area shall be applied.

Obstruction Clearances - HIFR Obstruction Clearance Criteria

4.A.21. When a deck area is used exclusively for HIFR operations, the minimum area size, as defined by the outside dimensions of the periphery line markings, shall be 3.3 m2. The HIFR area shall be approximately square in shape. Within the periphery line markings, a block letter ‘H’ (as detailed in Figure 3 of parent document, or pictorially at Figure A-2 Combined Landing and Swept Areas shall be painted to designate the spot over which the helicopter shall lower its hoist in order to pick up the refuelling hose.

4.A.22. When located in a landing and/or VERTREP area, the HIFR pick-up spot shall be located on the port side.

4.A.23. The minimum hover height for HIFR shall be determined based on a hover position that maintains the aircraft clearance volumes (TCA, FCA, FTRSA, MRSA) free from obstructions. The minimum hover height shall be increased by 0.89 m to account for vertical scatter.

4.A.24. In addition, the area between the fuelling station and the pick-up point shall be clear of obstructions. Deck equipment and hardware shall not snag or damage the HIFR hose.

Superseded

ACRONYMS and GLOSSARY

Glossary

G.1. **Air Capable Ships.** Air capable ships are ships on which an aircraft can land and from which an aircraft can be launched, i.e. ships fitted with a flight deck. Ships must be certified to operate with particular types of aircraft.

G.2. **Aircraft Types to be operated.** The certification for aviation operations designated for a particular ship shall specify the type(s) of aircraft and the Level and Class to which each aircraft type is capable of operating.

G.3. **Flight deck.** The flight deck is the clear area of deck where air capable ships conduct helicopter operations including landing, take-off, parking and traversing. The flight deck area includes the total deck area outside of the helicopter landing area. The flight deck area shall provide the means to safely secure aircraft and equipment (e.g. stores and pallets) to the deck. Figure 2 depicts a typical flight deck.

G.4. **Fore/Aft Position Line.** The fore/aft position line is a line painted athwartships. It is designed to give the pilot a reference for correct fore/aft position on the flight deck. The correct fore/aft position shall provide optimal position for main rotor clearance and tail wheel position and shall align the RAST probe (if fitted) central over the Rapid Securing Device (RSD). The fore/aft position line shall extend past the deck edge by 'outriggers' on the flight deck nets and should extend beyond the edge of the flight deck nets. The fore/aft position line is also known as 'Pilots Eye Line' – PEL, 'bum-line', 'eyebrow' line.

G.5. **Fuselage Clearance Area (FCA).** The fuselage clearance area (FCA) is the area of the flight deck outside the touchdown clearance area (TCA) for which adequate obstruction clearance is provided for the main rotor, fuselage and the most rear part of the fuselage (including tail rotor) likely to strike the deck. The FCA includes allowance for landing scatter and heading error.

G.6. **Fuselage and Tail Rotor Swept Area (FTRSA).** The fuselage and tail rotor swept area (FTRSA) is the area outside the FCA swept by the helicopter's fuselage and tail rotor while it is positioning for landing or departing after take-off, having allowed for airborne scatter in the fore/aft axis. The FTRSA extends laterally beyond the ships edge on any side that the helicopter may launch or recover from to account for aircraft positioning prior to transition over the deck. If the helicopter is constrained in a particular direction, then the clearance area shall extend a distance to account only for airborne scatter.

G.7. **Helicopter In-Flight Refuelling (HIFR).** Helicopter in-flight refuelling is where a fuel line is winched up to a helicopter in flight and the crew refuel the aircraft in flight.

G.8. **Instrument Meteorological Conditions (IMC).** Meteorological conditions (where instrument flight rules apply) expressed in terms of visibility, distance from cloud, and ceiling, less than minimums specified for Visual Meteorological Conditions (VMC).

G.9. **Landing Area.** The area of the flight deck where the aircraft lands. This area consists of the TCA, FCA, FTRSA and MRSA. These areas are calculated for aft, midships and forward clearance for single and dual main rotor helicopters.

Superseded

G.10. **Main Rotor Swept Area (MRSA).** The main rotor swept area (MRSA) is the area outside the FCA and FTRSA potentially swept by the helicopter's main rotor whilst it is positioning for landing or departing after take-off, having allowed for airborne scatter. The MRSA extends laterally beyond the ships edge on any side that the helicopter may launch or recover from to account for aircraft positioning prior to transition over the deck. If the helicopter is constrained in a particular direction, then the clearance area shall extend a distance to account only for airborne scatter.

G.11. **Primary Aircraft.** The primary aircraft is the aircraft type for which the ship's aviation facilities were primarily designed to operate with.

G.12. **Reference Position.** Location of the fore/aft position line in the nominated position as described at Annex A.

G.13. **Ship Level** is determined by the type of environmental conditions in which the ship is capable and certified to conduct aviation operations:

(a) **Level I.** The ship's facilities shall be capable of supporting day and night helicopter operations in both Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC) for those helicopters so designated.

(b) **Level II.** The ship's facilities shall be capable of supporting both day and night helicopter operations under VMC only.

(c) **Level III.** The ship's facilities shall be capable of supporting day helicopter operations under VMC only.

G.14. **Ship Class.** Class indicates the operating capability of an air capable ship in respect of maintenance facilities and logistic support:

(a) **Class 1.** Landing area with full service and organisational level maintenance facilities for the specified aircraft to be operated on a continually embarked basis, with accommodation for flight personnel and dedicated stowage for the full entitlement of spares and support equipment. For other aircraft types that are cleared to the flight deck and can be hangared, the facilities and stowage's may not be specifically designed to accommodate that aircraft; however, a Class 1 facility may be afforded that ship-helicopter combination.]

(b) **Class 2.** Landing area with service facilities for the aircraft to be operated on a short–term embarked basis with accommodation for flight personnel and storage available for limited spares and support equipment. For embarkations longer than 72 hours, a hangar is normally required.

(c) **Class 2A.** Landing area with limited service facilities e.g. no aircraft power.

(d) **Class 3.** Landing area without service or maintenance facilities.

(e) **Class 4.** The ship has a VERTREP area with a maximum obstruction height of 1.52 m within fuselage and landing gear clearance zones and 4.6 m within the rotor clearance zone.

(f) **Class 5.** The ship has a VERTREP area with a maximum obstruction height of 4.6 m within fuselage and landing gear clearance zones and 7.6 m within rotor clearance zone.

(g) **Class 6.** The ship has a Helicopter In–Flight Refuelling (HIFR) capability.

(h) **Class 7.** The ship has a helicopter transfer facility for transferring personnel and light cargo (normally up to about 250 kg) by means of aircraft hoist or handline.

Superseded

G.15. **Touchdown Clearance Area (TCA).** The TCA is that area of the flight deck within which the landing gear of a helicopter shall alight. It is centred on the optimum landing position, includes allowance for landing scatter and heading error, and ensures clearance from obstacles for the landing gear.

G.16. **Transfer Capable Vessels.** Transfer capable vessels are those vessels which do not have a flight deck or suitable area for VERTREP operations but which still have a requirement for aviation operations in the form of light cargo or personnel transfer. These vessels normally have minimum equipment and an obstacle-free area that is suitable for Transfer operations.

G.17. **Unserviceability.** In the context of Ships Aviation Facilities, an unserviceability is a change to the ship's material state that affects the ability of the ship to meet the designated Level and/or Class. These unserviceabilities shall be reported to the Aerodrome Operator.

G.18. **VERTREP.** Vertical replenishment (VERTREP) is the external transfer of materiel to and from a ship from a hovering helicopter.

G.19. **Visual Meteorological Conditions (VMC).** Weather conditions in which Visual Flight Rules (VFR) apply, expressed in terms of visibility, ceiling height, and aircraft clearance from clouds along the path of flight.

Acronyms

G.20. The following acronyms are used in this chapter

AC	Aircraft Controller
AFFF	Aqueous Film Forming Foam
ADF	Australian Defence Force or Automatic Direction Finding
ASSA	Aviation Sea Safety Assessment
AUTHOP	Authority to Operate
CCTV	Closed Circuit Television
COMAUSFLT	Commander Australian Fleet
CRFF	Crash Rescue Fire Fighting
DEF(AUST)	Australian Defence Standard
DEFSTAN	(British) Defence Standard
DF	Direction Finding
EOS&H	Explosive Ordnance Stowage and Handling
FCA	Fuselage Clearance Area

Superseded

FDM	Flight Deck Marshall
FDO	Flight Deck Officer
FLYCO	Flying Control Officer
FOD	Foreign Object Damage
FOCFT	First of Class Flight Trials
FSS	Fire Safety Study
FTRSA	Fuselage and Tail Rotor Swept Area
HAIM	HOSTAC Aircraft Interoperability Matrix
HCO	Helicopter Control Officer
HCS	Helicopter Control Station
HD	Helicopter Director
HERO	Hazard of Electromagnetic Radiation to Ordinance
HF	High Frequency
HIFR	Helicopter In-flight Refuelling
IFF	Identification Friend or Foe
IMC	Instrument Meteorological Conditions
KTS	Knots
LF	Low Frequency
LRA	Lightweight Refuelling Assembly
LSO	Landing Safety Officer
MARB	Maritime Armaments Review Board
MC1	A nylon tie-down lashing
MEDEVAC	Medical Evacuation
MIL	Military
MRD	Main Rotor Diameter
MRSA	Main Rotor Swept Area

Superseded

MS	Military Standard
NAP	Naval Air Publication
NASPO	Naval Aviation Systems Program Office
NATO	North Atlantic Treaty Organisation
NVD	Night Vision Device
NVG	Night Vision Goggles
NVIS	Night Vision Imaging System
OAL	Outfit Allowance List
OAT	Outside Air Temperature
OLM	Operational Level Maintenance
OT&E	Operational Test & Evaluation
OTH	Over the Horizon
PCA	Practical / Principle Critical Area
PT	Port
QNH	[not an acronym] Atmospheric Pressure (Q) at Nautical Height (aviation radiotelephony code)
RAAF	Royal Australian Air Force
RADHAZ	Radiation Hazard
RAN	Royal Australian Navy
RAST	Recovery Assist, Secure and Traverse
RCA	Rotor Clearance Area
RSD	Rapid Securing Device
Rx	Receiver
SAR	Search and Rescue
SGSI	Stabilised Glide Slope Indicator
SHOL	Ship Helicopter Operating Limit

Superseded

SHRS	Stabilised Horizon Reference System
SME	Squadron Mobile Equipment
STANAG	Standardisation Agreement (NATO)
STBD	Starboard
SWL	Safe Working Load
TACAN	Tactical Air Navigation System
TCA	Touchdown Clearance Area
TCS	Transfer Control Station
TD1A/B	A Chain Tie-down Lashing
Tx	Transmitter
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
UHF	Ultra-High Frequency
VERTREP	Vertical Replenishment
VMC	Visual Meteorological Conditions
WHS	Workplace Health and Safety
WSDS	Wind Speed and Direction System

Standards

G.21. The following standards are used throughout this chapter:

Australian Defence Documents

List of Applicable Documents	Applicability and Availability	Internal Reference
DEF(AUST) 5000 Vol 3 Pt 1, Issue 1, 04 Nov 2007 Hull System Requirements – Surface Ship Structure	Flight Deck Strength Electronic copy available on DEFWEB	4.78

Superseded

UNCLASSIFIED		
DEF(AUST) 5000 Vol 3 Pt 4 , Issue 2, 30 Apr 2008 Hull System Requirements – Painting UNCLASSIFIED	Flight Deck Painting Electronic copy available on DEFWEB	4.81
DEF(AUST) 5000 Vol 6 Pt 02 Section 03, Issue 01, 11 Oct 2007 Human Machine Interface – HMI UNCLASSIFIED	Human Machine Interface requirements Electronic copy available on DEFWEB	4.162
DEF(AUST) 5000 Vol 6 Pt 02 Section 13, 18 Feb 11 Radio Frequency Systems UNCLASSIFIED	Radio Frequency Systems Requirements Electronic copy available on DEFWEB	4.12
DEF(AUST) 5000 Vol 6 Pt 05 Section 03, Issue 01, 24 Nov 2000, Safety Requirements for Maritime EO Stowage and Handling Systems UNCLASSIFIED	Requirements for Safe stowage and handling of EO Electronic copy available on DEFWEB	4.173 4.173
DEF(AUST) 5000 Vol 6 Pt 06 Sec 01, Issue 03, 18 Jan 2005 Internal Communications and Distribution Systems UNCLASSIFIED	Requirements for Internal Communications and Distribution Systems Electronic copy available on DEFWEB	4.18 4.22
DEF(AUST) 5000 Vol 7 Pt 2 Issue 2, 23 Aug 2010 RAN Fire Safety Systems UNCLASSIFIED	Aviation Firefighting Facilities Electronic copy available on DEFWEB	4.34 4.35 4.39 4.40 4.43 4.44 4.45 4.47 4.51 4.54

Superseded

		4.57 4.58 4.59
DEF(AUST) 5000 Vol 7 Pt 23, Issue 1, 31 Jan 14 Total Ship Survivability, Platform Vulnerability UNCLASSIFIED	Hangar Door Strength. Flight Deck Windows. Electronic copy available on DEFWEB	4.181
DEF(AUST)5000 Volume 10, Part 02, Issue 3, 10 Mar 09 Navigation and Operational Environmental Systems for RAN Ships and Submarines	Aviation Station Requirements Electronic copy available on DEFWEB	4.168 4.133 4.139 4.140 4.141
ANP4411-1314 Electromagnetic Environmental Effects Management	RADHAZ Electronic copy available on DEFWEB	4.174
ANP4412-4314-1 RAN Lifting and Securing Equipment - Testing and Survey UNCLASSIFIED	Details the responsibilities, technical instructions and guidance relating to the reliability of all lifting and securing equipment on/in all RAN ships, support craft, submarines, aircraft, mine warfare, armament depots and shore establishments. Electronic copy available on DEFWEB	4.88
ANP3412-4202 Naval Materiel System Conformance and Control Publication UNCLASSIFIED	Provides administrative procedures that support the Naval Technical Regulatory System. Electronic copy available on DEFWEB	4.146
ANP 3300 FLEET AVIATION PROCEDURES UNCLASSIFIED	Details the procedures for the administration, operation, materiel support, certification and clearance for helicopter operations with RAN air, VERTREP and transfer capable ships. Electronic copy available on DEFWEB	4.153 4.94
ANP 4316 Version 1.0 Royal Australian Navy Shipboard Damage Control Procedures OFFICIAL: SENSITIVE	Details fire-fighting equipment, methods and procedures. Details Crash Kit requirements. Electronic copy available on DEFWEB	4.175

Superseded

NAP 7002.002-2M, Issue 3, 31 Mar 14 General Engineering Information – Shipborne Air Equipment UNCLASSIFIED	Encompasses all General Engineering information on Shipborne Air Equipment which do not have dedicated maintenance manuals Available in hardcopy. Sponsor is NASPO	4.175

International Military Agreements and Defence Documents Implementing International Military Agreements

List of Applicable Documents	Applicability and Availability	Internal Reference
MPP02(H)	Recovery Systems	4.148
MPP-02.3.3 Vertical Replenishment (VERTREP) Operating Areas, Marking, clearances, and Lighting.	VERTREP and Transfer Areas	4.76i 4.98
STANAG 1236, Edition 4 Glide Slope Indicators for Helicopter Operations from Ships	Applicable to Glide Slope Indicators. Consult DASA AH-CERT for availability.	4.110
STANAG 1276, Edition 2, Jun 2014 Shipborne Helicopter and UAV Harpoon-Grid Rapid Securing System	Applicable to Harpoon Grids Consult DASA AH-CERT for availability.	4.148
STANAG 1278, Edition 3 01 Jun 17 Standard for the Required Level and Measurement of Coefficient of Friction on Flight Decks	Applicable to Deck Friction Grids. Consult DASA AH-CERT for availability.	4.79 4.80
STANAG 1472, Edition 2 NVD Compatible Flight Deck Status Displays on Single Spot Ships	Applicable to Deck Status Displays. Consult DASA AH-CERT for availability.	4.114 4.116
STANAG 3847, Edition 2 Helicopter In-Flight Refuelling (HIFR) Equipment	Applicable to HIFR Equipment. Consult DASA AH-CERT for availability.	4.152
STANAG 4240, Edition 2 Liquid Fuel/external Fire, Munitions Test Procedures	Applicable to vulnerability of munitions to liquid fuel. Consult DASA AH-CERT for availability.	4.33.d
STANAG 7183, Edition 1	Applicable to CFR Equipment. Consult DASA AH-CERT for availability.	4.33 4.37

Superseded

The Minimum Crash, Fire-fighting And Rescue (CFR) Equipment Standards For Aviation Capable Vessels		

Other Nation's Military Documents

List of Applicable Documents	Applicability and Availability	Internal Reference
DEFSTAN 02-587, Issue 2 Requirements for Lighting Systems	Ships Lighting requirements for Night Vision Device compatibility Available through the Defence Library Service or DEFSTAN Portal	4.26 4.167 4.142.b
MIL-F-24385 Revision F Fire Extinguishing Agent, Aqueous Film Forming Foam, (AFFF) Liquid Concentrate, For Fresh And Sea Water UNCLASSIFIED	AFFF Concentrate Specification. Available through the Defence Library Service	4.35 4.36
NAVSEA DRAWING 803-1916300 Helicopter Securing Fittings UNCLASSIFIED	Detailed drawing of helicopter securing fittings. Consult SAF-DGTA for availability	4.88

DEF(AUST) 5000 Vol 11 Part 3 Issue 2 Cross Reference

The requirements of this chapter of ADRM supersede the following requirements of the DEF(AUST) 5000 Vol 11 Part 3 Issue 2 for the purpose of certification of Shipborne heliports.

DEF(AUST) 5000 Vol 11 Part 3 Issue 2 Para	ADRM Section 6 Chapter 4 Para
5.3.1.1	4.69
5.3.1.2	4.70
5.3.1.3	4.71
5.3.1.4	4.72
5.3.2.1	4.73
5.3.2.2	4.74

Superseded

5.3.3.1	4.75
5.3.3.3	4.76
5.3.3.3.1	4.76.a
5.3.3.3.2	4.76.b
5.3.3.3.3	4.76.c
Figure 1	Figure 1 NVG Line-up Lines
5.3.3.3.4	4.76.d
5.3.3.3.5	4.76.e
5.3.3.3.7	4.76.f
5.3.3.3.8	4.76.g
5.3.3.3.9	4.76.h
5.3.3.3.10	4.76.i
5.3.3.3.11	4.76.j
5.3.3.4	4.76.k
5.3.4.1.1	4.77
Figure 2	Figure 2 Common Flight Deck Markings
Figure 3	Figure 3 Typical HIFR Point Markings and Dimensions (Refer to Annex A for H location requirements)
Figure 4	Figure 4 Typical Marking of Hull Numbers (Detail B is applicable to ships with single spot operating areas e.g. DDG & FFH)
5.3.4.2	4.78
5.3.4.4.4	4.83
5.3.4.4.7	4.84
5.3.4.5.1	4.85

Superseded

5.3.4.5.2	4.86
5.3.4.7.1	4.181
5.3.4.7.2	4.182
5.3.4.8.1	4.79
5.3.4.8.2	4.80
5.3.4.8.3	4.81
5.3.4.8.4	4.82
5.3.5.1	4.87
5.3.5.2	4.88
5.3.5.3	4.89
5.3.5.4	4.90
5.3.5.5	4.91
5.3.5.6	4.92
5.3.5.7	4.93
5.3.8.1	4.147
5.3.8.2	4.148
5.4.4.1	4.64
5.4.4.6	4.65
5.4.4.6.1	4.65.a
5.4.4.6.3	4.65.b
5.4.4.7	4.66
5.4.4.8	4.67
5.4.4.8.1	4.67.a
5.4.4.8.3	4.67.b
5.4.5.2	4.68
5.5.1.1	4.100

Superseded

5.5.2.1	4.101
5.5.2.2	4.102
5.5.2.3	4.103
5.5.2.4	4.104
5.5.2.5	4.105
5.5.2.6	4.106
5.5.3.1	4.25
5.5.4.1	4.107
5.5.5.1	4.108
5.5.5.2	4.109
5.5.6.1	4.110
5.5.6.2	4.111
Figure 6	Figure 5
5.5.7.1	4.112
5.5.8.1	4.113
5.5.9.1	4.114
5.5.9.2	4.115
5.5.9.3	4.116
5.5.9.4	4.117
5.5.9.5	4.118
5.5.10.1	4.119
5.5.10.2	4.120
5.5.10.3	4.121
5.5.12.1	4.26
5.5.12.2	4.27
5.5.13.1	4.149

Superseded

5.5.13.2	4.150
5.5.13.3	4.151
Figure 7	Figure 6
5.6.1.1	4.153
Table 5	Table 3
5.6.2.1	4.154
Table 6	Table 4
5.6.3.1	4.155
5.6.3.2	4.156
5.6.3.4	4.157
5.6.4.1	4.158
5.6.4.2	4.159
5.6.4.3	4.160
5.6.4.4	4.161
5.6.4.5	4.162
5.6.5.1	4.163
5.6.5.2	4.164
5.6.5.3	4.165
5.6.6.1	4.166
5.6.6.1.1	4.166.a
5.6.6.1.2	4.166.b
5.6.6.1.3	4.166.c
5.6.7.1	4.167
5.6.7.3	4.168
5.6.8.1	4.169
5.6.9.1	4.122

Superseded

5.6.9.2	4.123
5.6.9.3	4.124
5.6.9.4	4.125
5.6.9.5	4.126
5.6.10.1	4.127
5.6.10.2	4.128
5.6.10.3	4.129
5.6.10.4	4.130
5.6.10.5	4.131
5.6.10.6	4.132
5.6.11.1	4.133
5.6.11.2.1	4.134
5.6.11.2.2	4.135
5.6.11.2.3	4.136
5.6.11.2.4	4.137
5.6.13.1	4.138
5.6.13.2	4.139
5.6.14.1	4.140
5.6.15.1	4.141
5.6.16.1	4.170
5.6.16.2	4.171
5.6.17	4.142
5.6.17.1.1	4.142.a
5.6.17.1.2	4.142.b
5.6.19.1	4.180
5.6.20.1	4.28

Superseded

5.6.20.2	4.29
5.6.20.3	4.30
5.6.20.4	4.31
5.6.20.5	4.32
5.6.20.5.1	4.32.a
5.6.20.5.2	4.32.b
5.6.20.5.3	4.32.c
5.6.20.5.4	4.32.d
5.6.20.5.5	4.32.e
5.6.20.5.6	4.32.f
5.6.20.6	4.32.g
5.6.20.7	4.32.h
5.6.20.8	4.32.i
5.6.21.1	4.23
5.6.21.2	4.24
5.6.21.2.1	4.24.a
5.6.21.2.2	4.24.b
5.6.21.2.3	4.24.c
5.6.21.2.4	4.24.d
5.6.21.2.5	4.24.e
5.6.22.1	4.11
Table 7	Table 1
5.6.22.2	4.12
5.6.22.2.1	4.13
5.6.22.2.2	4.14
5.6.22.2.3	4.15

Superseded

5.6.22.2.4	4.16
5.6.22.2.5	4.17
5.6.22.3	4.18
5.6.22.3.1	4.19
5.6.22.3.1.2	4.19.a
5.6.22.3.2	4.20
5.6.22.3.4	4.21
5.6.22.3.5	4.22
5.6.22.3.5.1	4.22.a
5.6.22.3.5.2	4.22.b
5.6.23.1	4.143
5.6.23.1.1	4.143.a
5.6.23.1.2	4.143.b
5.6.23.1.3	4.143.c
5.6.23.2	4.144
5.6.23.3	4.145
Table 8	Table 2
5.6.23.4	4.146
5.6.24	4.174
5.7.3.1	4.152
5.8.2.1	4.94
5.8.5.1	4.175
5.8.6.1	4.176
5.8.6.1.1	4.177
5.8.6.1.2	4.178
5.8.6.1.3	4.179

Superseded

5.8.7.4	4.172
5.8.7.6	4.173
5.8.8	4.95
5.9.1	4.33
5.9.1.1	4.33
5.9.1.1.1	4.33.a
5.9.1.1.2	4.33.b
5.9.1.1.3	4.33.c
5.9.1.1.4	4.33.d
5.9.1.2	4.34
5.9.2.1	4.35
5.9.2.2	4.36
5.9.3.1	4.37
5.9.3.2	4.38
5.9.3.3	4.39
5.9.3.4	4.40
5.9.3.5	4.41
5.9.3.6	4.42
5.9.4.1	4.43
5.9.4.2	4.44
5.9.4.3	4.45
5.9.4.4	4.46
5.9.4.5	4.47
5.9.4.6	4.48
5.9.4.7	4.49
5.9.5.1	4.50

Superseded

5.9.5.2	4.51
5.9.5.3	4.52
5.9.5.4	4.53
5.9.5.5	4.54
5.9.5.6	4.55
5.9.6.1	4.56
5.9.6.2	4.57
5.9.6.3	4.58
5.9.6.4	4.59
5.9.6.5	4.60
5.9.12.2	4.61
New requirement derived from the ones now out of scope	4.62
5.9.12.4	4.63
5.10.1	4.96
5.10.2	4.97 With changes to align with NATO standardisation
5.10.3	4.98 With changes to align with NATO standardisation
Section 6	Annex A
6.1.1	4.A.1
6.1.2	4.A.2
6.1.2.1	4.A.3
Table 11	Table A-1
6.1.2.2	4A.4
Table 12	Table A-2

Superseded

6.1.2.3	4.A.5
6.1.3	4.A.6
6.1.3.1	4.A.7
6.1.3.2	4.A.8
6.1.3.3	4.A.9
6.1.3.4	4.A.10
6.1.3.5	4.A.11
6.1.3.6.1	4.A.12
6.1.3.6.2	4.A.13
6.1.3.6.3	4.A.14
6.1.3.6.5	4.A.15
Figure 9	Figure A-1
Figure 10	Figure A-2
Figure 11	Figure A-3
Figure 12	Figure A-4
6.1.4	4.A.16
Table 13	Table A-3
6.1.5	4.A.17
6.1.6	4.A.18
6.1.7	4.A.19
6.1.8	4.A.20
6.1.9.1	4.A.21
6.1.9.2	4.A.22
6.1.9.3	4.A.23
6.1.9.4	4.A.24

Superseded

Notes to readers

SUMMARY OF CHANGES INTRODUCED IN THIS ISSUE DATED 27 Feb 2025

This issue of the DASDRM incorporates changes as follows:

Section 5 Chapter 8 Air Navigations Systems – Introduction of new chapter

Superseded

Advisory Circulars and Factsheets

Advisory Circulars and Factsheets are sources of support material intended to promote understanding of, and compliance with, the DASR. All support material is authoritative information issued by DASA that does not mandate any action but which may address regulatory requirements and provisions established elsewhere. Other sources of support material include:

a. DASR Acceptable Means of Compliance

b. DASR Guidance Material

c. Defence Aviation Safety Program Manual Volume 3 DASP Guidance.

Advisory Circulars are typically issued to deliberately bring an issue to the attention of the target audience or to address a complex topic. ACs may be used to identify acceptable ways to achieve regulatory compliance, either as a temporary transition arrangement or in advance of promulgation as DASR Acceptable Means of Compliance.

Factsheets are typically issued to provide concise information that may assist those interested in a particular topic.

Advisory Circulars

Current ACs that do not have a hyperlink are only available on the Defence Intranet. To access, please visit the DASA Intranet page and select the 'Advisory Circulars (restricted)' menu item under the 'Policy and Guidance' tab.

AC Number	Title	Date Issued	POC	Comments
001/2024	Global Reporting Format - Runway Surface Condition	Sep 24	DAVNOPS	
001/2023	Defence Aviation Due Regard Operations	Apr 23	DASA HQ	Available via DPN Only
003/2022	Changes to the Structure of Defence Aviation Safety Policy	Aug 22	DASA HQ	
002/2022	Management of Aviation Risks to People Who Are Not Members of the ADF	Jul 22	DASA HQ	Available via DPN Only
001/2022	Defence Navigation Authorisations - Revision 1.0	Jul 22	DAVNOPS	
004/2021	DASR ARO.100 Quality Management System	Jul 21	DAVNOPS	
001/2021	Implementing Interim Arrangements for Certification of On-Aircraft Structural Repairs	Dec 24	DASA HQ	

Superseded

	Enclosure 1 - DASA iMMA Application Enclosure 2 - Minimum Requirements			
008/2020	Aircraft Flight Manuals	Dec 20	DAVNOPS	
004/2020	Transition to DASR.139 Aerodromes v2.0	Jul 24	DAVNOPS	
002/2020	Aircrew Training	Mar 20	DAVNOPS	
004/2019	Aircrew Fatigue Management	Aug 19	DAVNOPS	Available via DPN Only
003/2018	Risk Management in the DASP	Sep 18	DASA HQ	
001/2018	Risk Controls For UAS Operations	Mar 18	DASA HQ	
002/2017	Flight in Airspace with Volcanic Ash Contamination	Jul 17	DASA HQ	Supersedes TAAC 02/2012
005/2016	Defence Compliance with Civil ADS-B - Revision 2.0	Jun 22	DAVNOPS	
003/2016	Obstacle Data Considerations and Runway Displaced Thresholds	Nov 16	DAVNOPS	

Factsheets

Topics:

- Aerodromes
- Air Cargo Delivery
- Certification
- Cyber Security
- General
- Maintenance Licensing and Training
- Production
- Uncrewed Aircraft Systems

Aerodromes
Aerodrome Design Requirements and Certification Basis

Superseded

Aerodrome Issue Paper
Applying for Certification
DASR 139 Aerodrome Certification Criteria
DASR 139 Aerodrome Certification Process
Defence Aerodrome Obstacle Management
Information Guide On Interpretation of CASA Part 139 MOS
Military Aerodrome Certification Review Items
Responsibility for the Design and Construction of Safe Aerodromes
Why Certify Defence Aerodromes Under DASR.139

Air Cargo Delivery
Management of Air Cargo Delivery Equipment

Certification
Air Launched Stores
Aircraft Eligibility for Performance Based Navigation and Reduced Vertical Separation Minimum Operations
ALSE vs Role Equipment vs PEE vs Cargo
Certification of ALSE
DASA Level of Involvement
Defence Long Range Operations (DLRO)
Management of Civil Derivative Aircraft Type Designs
Technical Evaluation of Role Equipment

Cyber Security
Establishing Protections Against Cyber Hazard to Aviation Safety

Superseded

General
Establishing Compliance With DASR
Guidance on the Use of Synthetic Aviation Turbine Fuels

Uncrewed Aircraft Systems
Airspace Considerations for UAS Operations - Entry Requirements
Initial and Continuing Airworthiness Requirements for Specific Category UAS

Cancelled ACs

To access a cancelled AC, please contact the POC indicated in the table below.

AC Number	Title	Date Issued	POC	Comments
008/2021	Interim arrangements for MAML discrepancies resulting from PMKeyS proficiency errors	Jul 23	DCA	
007/2021	Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL) Development and Approval	Dec 21	DCA	Now included within DASP Manual Volume 3 Chapter 8.2.2 & Appendices
006/2021	Consumption of United States (US) Department of Defence (DoD) supplied products	Nov 21	DCA	Now included within DASP Manual Volume 3 Chapter 8.2.3
005/2021	Structural and Propulsion System Integrity Programs in the DASP	Sep 21	DAVENG	Now included within DASP Manual Volume 3 Chapter 6.6
002/2021	Deliberate Review of Flight Operations Implementing Regulations - Update	Mar 21	DAVNOPS	
006/2020	Repairs	Dec 22	DAVENG	Now included within DASP Manual Volume 3 Chapter 7.2.4
005/2020	Certification of Maintenance – DASA 145 MO and CAMO Responsibilities	Sep 20	DASA HQ	Now included within DASP Manual Volume 3 Chapter 8.3.3

Superseded

001/2020	Risk Management in MPTF Applications	Apr 20	DASA HQ	Now included within DASP Manual Volume 3 Chapter 7.5
003/2019	Aircrew Licencing	Mar 19	DAVNOPS	
009/2018	Addressing Service Release Requirements under DASR	Oct 18	DASA HQ	Now included within DASP Manual Volume 3 Chapter 8.3.4
008/2018	Acceptance of Aircraft Components	Sep 18	DASA HQ	Now included within DASP Manual Volume 3 Chapter 8.3.4
007/2018	Line and Base Maintenance	Sep 18	DASA HQ	Now included within DASP Manual Volume 3 Chapter 8.3.2
006/2018	Certificate of Release to Service Responsibilities For Maintenance Organisation and CAMOs	Sep 18	DASA HQ	Superseded by AC 005/2020
005/2018	Management of Defects	Sep 18	DASA HQ	
004/2018	Airworthiness Recognition in the DASP	Sep 18	DASA HQ	Now included within DASP Manual Volume 3 Chapter 6.5
002/2018	Application For Military Type Certificates and Major Design Changes	Sep 18	DASA HQ	Now included within DASP Manual Volume 3 Chapter 7.2
006/2017	Military Type Certificate Holder Arrangements	Oct 17	DASA HQ	Now included within DASP Manual Volume 3 Chapter 7.4.1
005/2017	Authorisation of Flight for Non-Standard Changes to Configuration, Role and Environment	Sep 17	DASA HQ	Superseded by AC 005/2018
003/2017	DASR Implementation of Military Permits to Fly	Oct 17	DASA HQ	Now included within DASP Manual Volume 3 Chapter 7.5
001/2017	DASR Transitional Guidance	Jun 17	DASA HQ	
002/2016	Aviation Command Responsibilities under DASR	Sep 16	DAVNOPS	
001/2016	Airworthiness Nomenclature under DASR	Aug 17	DAVNOPS	

Superseded

Cancelled Factsheets

The following Factsheets have been cancelled and the content contained within has been published in DASP Manual Volume 3.

Certification	
Successful Applications for Flight Conditions and Military Permits To Fly	Chapter 7.5 Annex
Tailoring a Type Certification Basis and Military Certification Review Items	Chapter 7.2 Annex A
Operational Controls and Risk Management Associated with Type Certification Basis (TCB) Tailoring	Chapter 7.2 Annex A
Leveraging Prior Certification	Chapter 7.2 Annex B
Airworthiness Issue Papers (AwIPs)	Chapter 6.1.2 Annex C
Military Supplemental Type Certificates	Chapter 7.2.3
Certification Programmes	Chapter 7.2.2
Instructions for Continuing Airworthiness (ICA)	Chapter 7.2.5
Propulsion System Related Risk Analysis in Defence	Chapter 7.2 Annex E
Reclassification of Design Changes Requiring Type Certification Basis (TCB) Tailoring	Chapter 7.2.3

Maintenance Licensing and Training	
Military Aircraft Type Ratings	Chapter 8.5.8
DASR 147 Personnel Requirements	Chapter 8.5.3
DASR 147 Military Aircraft Type Training Levels Vs Service Learning Levels	Chapter 8.5.8
Defence Approach to Aircraft Welding Repair Training Qualification and Renewal	Chapter 8.3.2

Non-Destructive Testing and Composite Technologies

Superseded

Appointment of Non Destructive Testing Responsible Level 3 in DASR 145 Maintenance Organisations	Chapter 4.2.3
Non-Destructive Testing Instructions for Continuing Airworthiness (ICA)	Chapter 7.2.5
Non-Destructive Testing Standards Requirements	Chapter 8.3.2
Composite Repair Training and Certification	Chapter 4.2.3 Chapter 8.3.2
Defence Approach to Non-Destructive Testing Training and Certification	Chapter 4.2.3 Chapter 8.3.2

Production
Production Assurance in the DASP
Production of Software

Superseded

ACRONYM	EXPANSION
AAFC	Australian Air Force Cadets
AAMP	Aviation Acquisition Management Plan
AAP	Australian Air Publication
ABL	Allocated Baseline
ABM	Air Battle Management
ABMO	Air Battle Management Operator
ABMOC	Air Battle Management Operator Certificate
ABMOps	Air Battle Management Operations
ABR	Australian Books of Reference (Navy)
AC	Airworthiness Circular (FAA and CASA)
ACAR	Airworthiness Board Corrective Action Request
ACAUST	Air Commander Australia
ACB	Aviation Coordination Board
ACD	Air Cargo Delivery
ACDSP	Air Cargo Delivery Service Provider
ACDSPC	Air Cargo Delivery Service Provider Certificate
ACM	Airspace Control Measures
ACN	Aircraft Classification Number
ACO	Air Combat Officer
Acq	Acquisition
AD	Airworthiness Directive

Superseded

AD OPR	Aerodrome Operator
ADE	Aerial Delivery Equipment
ADF	Australian Defence Force
ADM	Aerodrome Manager
AdrIP	Aerodrome Issue Paper
AEP	Aerodrome Emergency Plan
AFC	Aviation Facilities Certificate
AFIC	Air Force Interoperability Council
AFM	Aircraft Flight Manual
AFRU	Aerodrome Frequency Response Unit
AGL	Above Ground Level
AI	Application Identifier
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
ALI	Airworthiness Limitation Items
ALSE	Aeronautical Life Support Equipment
ALSLMU	Aeronautical Life Support Logistics Management Unit
AltMOC	Alternative Means of Compliance
AM	Accountable Manager
AMAFTU	Aircraft Maintenance and Flight Trials Unit
AMC	Acceptable Means of Compliance
AMD	Authorised Maintenance Data
AME	Aeromedical Evacuation

Superseded

AMM	Aircraft Maintenance Manual
AMO	Approved Maintenance Organisation
AMP	Aircraft Maintenance Programme
AMS	Airworthiness Management System
AMSL	Above Mean Sea Level
AMTDU	Air Movements Training and Development Unit
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
ANSPC	Air Navigation Service Provider Certificate
ANSPE	Air Navigation Service Provider Exposition
AO	Above Obstacles
APTO	Aviation Physiology Training Officer
APU	Auxiliary Power Unit
APV	Approach Procedure(s) with Vertical Guidance
ARFF	Aerodrome Rescue and Fire Fighting
ARP	Aerodrome Reference Point
ARP	Aerospace Recommended Practice
AS	Accomplishment Summary
AS/NZS	Australia/New Zealand Standards
ASAMP	Aviation Safety Acquisition Management Plan
ASH	Area Safe Height
ASI	Aircraft Structural Integrity
ASIC	Air and Space Interoperability Council
ASIMP	Aircraft Structural Integrity Management Plan

Superseded

ASIP	Aircraft Structural Integrity Program
ASM	Aviation Safety Management
ASMS	Aviation Safety Management System
ASO	Aviation Safety Officer
ASOR	Aviation Safety Occurrence Report (replaced by ASR)
ASR	Aviation Safety Report
AT&E	Acceptance Test and Evaluation
ATA	Air Traffic Advisory
ATA	Air Transportation Association
ATACSPO	Air Training and Aviation Commons System Program Office
ATC	Air Traffic Control
ATE	Aircraft Test Equipment
ATI	Aerodrome Technical Inspection
ATM	Air Traffic Management
ATMP	Air Traffic Management Plan
ATS	Air Traffic Service
ATSB	Australian Transport Safety Bureau
AUSMPA	Australian Military Part Approval
AUSMTSO	Australian Military Technical Standard Order
AUTHOP	Authority to Operate
AVFM	Aviation Fatigue Management
AVMED	Aviation Medicine
AVMO	Aviation Medical Officer
AVO	Air Vehicle Operator

Superseded

AwB	Airworthiness Board
AwL	Airworthiness Limitation
BAC	Battlefield Airspace Control
Baro-VNAV	Barometric Vertical Navigation
BASO	Base Aviation Safety Officer
BFT	Basic Flight Trainer
BoM	Bureau of Meteorology
CA	Cabin Altitude
CAA	Civil Aviation Authority
CAAP	Civil Aviation Advisory Publication (CASA)
CAF	Chief of Air Force
CAM	Continuing Airworthiness Manager
CAME	Continuing Airworthiness Management Exposition
CAMO	Continuing Airworthiness Management Organisation
CAO	Civil Aviation Order (CASA)
CAR	Civil Aviation Regulations 1988 (Australia)
CAR	Corrective Action Request
CASA	Civil Aviation Safety Authority (Australia)
CASR	Civil Aviation Safety Regulations 1998 (Australia)
CDCCL	Critical Design Configuration Control Limitations
CDF	Chief of Defence Force
CDL	Configuration Deviation List
CENGR	Chief Engineer
CEO	Chief Executive Officer

Superseded

CFIT	Controlled Flight Into Terrain
CI	Configuration Item
CIMHS	Critical Incident Mental Health Support
CJOPS	Chief of Joint Operations
CMM	Component Maintenance Manual
CMR	Certification Maintenance Requirement
CNS	Communication, Navigation and Surveillance
CNS/ATM	Communication, Navigation, Surveillance/Air Traffic Management
CoA	Certificate of Airworthiness
COMAUSFLT	Commander Australian Fleet
COMD AVNCOMD	Commander Army Aviation Command
COTS	Commercial Off-The-Shelf
CP	Certification Programme
CPCP	Corrosion Prevention and Control Program
CRE	Configuration, Role and Environment
CRP	Core Risk Profile
CRS	Certificate of Release to Service
CS	Certification Specification (EASA)
CTAF	Common Traffic Advisory Frequency
CVR	Cockpit Voice Recorder
DAAD	Defence Aviation Authority Directive
DAH	Designated Airspace Handbook
DASA	Defence Aviation Safety Authority
DASDRM	Defence Aviation Safety Design Requirements Manual

Superseded

DASF	Defence Aviation Safety Framework
DASM	Defence Aviation Safety Manual
DASP	Defence Aviation Safety Program
DASR	Defence Aviation Safety Regulations
DAVENG	Directorate of Aviation Engineering (DASA Directorate)
DAVFMG	Defence Aviation Fatigue Management Guidebook
DAVNOPS	Directorate of Aviation Operations (DASA Directorate)
DCA	Directorate of Continuing Airworthiness (DASA Directorate)
DCAF	Deputy Chief of Air Force
DCI	Decompression Illness
DDA	Defence Disposal Agency
DDP	Declaration of Design and Performance
DEF STAN	Defence Standard (UK MoD)
Defence AA	Defence Aviation Authority
DFSB	Defence Flight Safety Bureau (DASA Directorate)
DI	Defence Instructionn
DIA	Directorate of Initial Airworthiness (DASA Directorate)
DID	Data Item Description
DLRO	Defence Long Range Operations
DoD	Department of Defence (US)
DOE	Design Organisation Exposition
DoSA	Delegate of the Safety Authority
DoSA(FT)	Delegate of the Safety Authority – Flight Test
DSpace	Directorate of Space

Superseded

DSP	Data Service Provider
DSTG	Defence Science and Technology Group
DT&E	Developmental Test and Evaluation
E3	Electromagnetic Environmental Effects
E3CP	E3 Control Program
E3CPP	E3 Control Program Plan
EASA	European Aviation Safety Agency
ECS	Environmental Control Systems
EDP	Electronic Data Processing
EDTO	Extended Diversion Time Operations
EFB	Electronic Flight Bag
ELT	Emergency Locator Transmitter
EMACC	European Military Airworthiness Certification Criteria
EMAD	European Military Airworthiness Document
EMAD 1	European Military Airworthiness Document - Definitions and Acronyms Document
EMAD R	European Military Airworthiness Document - Recognition
EMAR	European Military Airworthiness Requirements
EMAR 21	Requirements for the Certification of military aircraft and related products, parts and appliances, and design and production organisations
EMAR 66	Requirements for Military Aircraft Maintenance Licensing (of Personnel)
EMAR M	Continuing Airworthiness Requirements
EMC	Electromagnetic Compatibility
EMCON	Emissions Control
EME	Electromagnetic Environment

Superseded

EMI	Electromagnetic Interference
EMPA	European Military Part Approval
EMSEC	Emanations Security
EO	Explosive Ordnance
EPM	Engine and Propeller Manual
EROPS	Extended Range Operations
ESF	Equivalent Safety Finding
ESI	Engine Structural Integrity
ESIMP	Engine Structural Integrity Management Plan
ETOPS	Extended Twin-engined Operations
EUROCAE	European Organisation for Civil Aviation Equipment
FAA	Federal Aviation Administration (US)
FAR	Federal Aviation Regulations (US)
FDR	Flight Data Recorder
FID	Flight Information Documents
FIR	Flight Information Region
FIS	Flight Information Service
FLIP	Flight Information Publication
FLTAUTH	Flight Authorisation
FLTAUTHO	Flight Authorisation Officer
FMA	Foreign Military Aircraft
FMEA	Failure Modes and Effects Analysis
FMS	Flight Management System
FMS	Foreign Military Sales

Superseded

FO	Flying Order
FOB	Forward Operating Base
FOC	Full / Final Operational Capability
FOD	Foreign Object Damage
FOD	Foreign Object Debris
FPO	Failure Probability Objectives
FPD	Flight Procedure Design
FPS	Function and Performance Specification
FRS	Flammability Reduction Systems
FS	Flight Simulator
FSR	Field Service Representative
FSTD	Flight Simulation Training Device
FT	Flight Test
FTD	Flight Training Device
FTO	Flight Test Organisation
FTS	Flight Test Schedule
FTS	Fuel Tank Safety
FUA	Flexible Use Airspace
GCS	Ground Control Station
GM	Guidance Material
GNSS	Global Navigation Satellite System
GP	General Public
GPWS	Ground Proximity Warning System
GR	General Requirements

Superseded

GSE	Ground Support Equipment
GWEO	Guided Weapons and Explosive Ordnance (Branch)
HAOW	Height Above Obstacles Within
HERF	Hazards of Electromagnetic Radiation to Fuel
HERO	Hazards of Electromagnetic Radiation to Ordnance
HERP	Hazards of Electromagnetic Radiation to Personnel
HF	High Frequency
HF	Human Factors
HFE	Human Factors Engineering
HIC	Head Injury Criteria
HLS	Helicopter Landing Site
HMI	Human Machine Interface
HTA	Hazard Tracking Authorit
IAM	RAAF Institute of Aviation Medicine
IATA	International Air Transport Association
IAW	In Accordance With
ICA	Instructions for Continuing Airworthiness
ICAO	International Civil Aviation Organization
IEEE	Institute of Electrical and Electronic Engineers
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
IGW	Increased Gross Weight
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions

Superseded

IOC	Initial Operational Capability
IOP	Installation Operating Permit
IR	Implementing Regulation
IRE	Instrument Rating Examiner
ISA	International Standard Atmosphere
ISO	International Standards Organisation
ISO	International Organisation for Standardisation
JAA	Joint Airworthiness Authorities
JAR	Joint Airworthiness Requirements
JPR	Joint Personnel Recovery
JSSG	Joint Services Specification Guide
JUA	Joint User Airspace
KCAS	Knots Calibrated Air Speed
KIAS	Knots Indicated Air Speed
LFA	Low Flying Area
LFR	Low Flying Route
LOG	Logistics
LSALT	Lowest Safe Altitude
LSE	Life Support Equipment
LVP	Low Visibility Procedures
MAA	Military Aviation Authority
MACRI	Military Aerodrome Certification Review Item
MAML	Military Aircraft Maintenance Licence
MAO	Military Air Operator

Superseded

MAOC	Military Air Operator Certificate
MARC	Military Airworthiness Review Certificate
MATS	Manual of Air Traffic Services
MAUW	Maximum All Up Weight
MCOA	Military Certificate of Airworthiness
MCRI	Military Certification Review Item
MDOA	Military Design Organisation Approval
MDOE	Military Design Organisation Exposition
MDR	Maintenance Deficiency Report
MEL	Minimum Equipment List
MEP	Mission Essential Personnel
ME	Meteorology
MIL-HDBK-xxx	Military Handbook (US)
MIL-STD-xxx	Military Standard (US)
mlx	millilux
MMEL	Master Minimum Equipment List
MOB	Main Operating Base
MOE	Maintenance Organisation Exposition
MoS	Manual of Standards
MOTS	Military-off-the-shelf
MoU	Memorandum of Understanding
MOPS	Minimum Operational Performance Specifications
MOWP	Method of Works Plan
MP	Management Plan

Superseded

MPD	Maintenance Planning Document
MPOA	Military Production Organisation Approval
MPOE	Military Production Organisation Exposition
MPS	Mission Planning System
MPTF	Military Permit to Fly
MRP	Mission Risk Profile
MRTC	Military Restricted Type-Certificate
MSA	Minimum Sector Altitude
MSTC	Military Supplemental Type-Certificate
MTC	Military Type-Certificate
MTO	Maintenance Training Organisation
MTOE	Maintenance Training Organisation Exposition
MTOW	Maximum Take Off Weight
NAA	See CAA
NDI	Non-destructive Inspection
NDRA	Non-Defence Registered Aircraft
NDT	Non-destructive Test(ing)
NMAA	See MAA
NPA	Non-precision Approach
NPA	Notice of Proposed Amendment
NTS	Non-Technical Skills
NVD	Night Vision Device
NVG	Night Vision Goggles
NVIS	Night Vision Imaging System

Superseded

O&SHA	Operating and Support Hazard Analysis
OBOGS	On-board Oxygen Generation System
OBR	On-board Recording
OCS	Operations Compliance Statement
OEI	One Engine Inoperable
OEM	Original Equipment Manufacturer
OFI	Operational Flying Instructor
OIP	Orders, Instructions and Publications
OLS	Obstacle Limitation Surfaces
OP	Other Parties
OPCON	Operational Control
OPHAZ	Operational Hazard
OPS	Operations
OpSpec	Operations Specification
OSN	Operational Support Network
OT&E	Operational Test and Evaluation
PA	Precision Approach
PANS	Procedures for Air Navigation Services (ICAO)
PAL	Pilot Activated Lighting
PBN	Performance Based Navigation
PCN	Pavement Classification Number
PED	Portable Electronic Device
PEE	Portable Electronic Equipment
PEM	Project Engineering Manager

Superseded

PHE	Periodic Health Examination
PLT	Pilot
pMS	participating Member State
PO	Project Office
POA	Production Organisation Approval
POE	Production Organisation Exposition
PPR	Prior Permission Required
PRD	Prohibited, Restricted and Danger (areas)
PSAC	Plan for Software Aspects of Certification
PSIMP	Propulsion Systems Integrity Management Plan
PSIP	Propulsion Systems Integrity Program
QAI	Qualified Aviation Instructor
QFI	Qualified Flying Instructor
QHI	Qualified Helicopter Instructor
QM	Quality Manager
QMS	Quality Management System
QTP	Qualified Test Pilot
RA	Restricted Area
RDS	Runway Distance Supplement
RM	Responsible Manager
RM	Risk Management
RMA	Risk Management Authority
RMP	Risk Management Plan
RNAV	Area Navigation

Superseded

RNP	Required Navigation Performance
RP	Remote Pilot
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
RPS	Remote Pilot Station
RPT	Regular Public Transport
RTCA	Requirements Technical Commission for Aeronautics
RTCA	Radio Technical Commission for Aeronautics
RVR	Runway Visual Range
RVSM	Required Vertical Separation Minima
SAE	Society of Automotive Engineers
SAF	Ship Aviation Facility
SAR	Search and Rescue
SARPS	Standards And Recommended Practices (ICAO)
SATCO	Senior Air Traffic Control Officer
SAVMO	Senior Aviation Medical Officer
SB	Service Bulletin
SBAS	Satellite Based Augmentation System
SESHA	Specialist Employment Stream Health Assessment
SFARP	So Far As is Reasonably Practicable
SFI	Special Flying Instructions
SHA	Safety Hazard Analysis
SHOL	Ship Helicopter Operating Limits
SI	Standing Instructions

Superseded

SI	Structural Integrity
SIRE	Senior Instrument Rating Examiner
SME	Subject Matter Expert
SMS	Safety Management System
SOIU	Statement of Operating Intent and Usage
SOW	Statement of Work
SPC	Service Provision Conditions
SPO	Systems Program Office
SRM	Safety Risk Management
SRM	Structural Repair Manual
SRSPO	Surveillance and Response Systems Program Office
SSAMA	Single Service Aviation Medical Advisor
SSG	System Safety Group
SSP	System Safety Program
STANAG	Standardisation Agreement (in NATO)
STC	Supplemental Type Certificate
STD	Synthetic Training Device
T&E	Test and Evaluation
TC	Type Certificate
TCAE	Type Continued Airworthiness Exposition
TCB	Type Certification Basis
TCDS	Type Certificate Data Sheet
TLS	Through Life Support
TMUCD	Temporarily Medically Unfit Controlling Duties

Superseded

TMUFF	Temporarily Medically Unfit for Flying (related duties)
TO	Technical Order (USAF)
TRR	Test Readiness Review
TSO	Technical Standard Order (FAA)
UA	Uncrewed Aircraft
UAS	Uncrewed Aircraft System
UASOP	Uncrewed Aircraft Systems Operating Permit
UAT	Uncrewed Aerial Target
UCS	UA Control Station
UK MoD	Ministry of Defence (UK)
ULD	Underwater Locating Device
UPT	User Preferred Trajectories
US DoD	United States Department of Defence
USAF	United States Air Force
USN	United States Navy
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
WHMP	Wildlife Hazard Management Plan
WHRA	Warbird, Historic and Replica Aircraft

Superseded

Acronyms

ACRONYM	EXPANSION
AAFC	Australian Air Force Cadets
AAMP	Aviation Acquisition Management Plan
AAP	Australian Air Publication
ABL	Allocated Baseline
ABM	Air Battle Management
ABMO	Air Battle Management Operator
ABMOC	Air Battle Management Operator Certificate
ABMOps	Air Battle Management Operations
ABR	Australian Books of Reference (Navy)
AC	Airworthiness Circular (FAA and CASA)
ACAR	Airworthiness Board Corrective Action Request
ACAUST	Air Commander Australia
ACB	Aviation Coordination Board
ACD	Air Cargo Delivery
ACDSP	Air Cargo Delivery Service Provider
ACDSPC	Air Cargo Delivery Service Provider Certificate
ACM	Airspace Control Measures
ACN	Aircraft Classification Number
ACO	Air Combat Officer
Acq	Acquisition

Superseded

AD	Airworthiness Directive
AD OPR	Aerodrome Operator
ADE	Aerial Delivery Equipment
ADF	Australian Defence Force
ADM	Aerodrome Manager
AdrIP	Aerodrome Issue Paper
AEP	Aerodrome Emergency Plan
AFC	Aviation Facilities Certificate
AFIC	Air Force Interoperability Council
AFM	Aircraft Flight Manual
AFRU	Aerodrome Frequency Response Unit
AGL	Above Ground Level
AI	Application Identifier
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
ALI	Airworthiness Limitation Items
ALSE	Aeronautical Life Support Equipment
ALSLMU	Aeronautical Life Support Logistics Management Unit
AltMOC	Alternative Means of Compliance
AM	Accountable Manager
AMAFTU	Aircraft Maintenance and Flight Trials Unit
AMC	Acceptable Means of Compliance
AMD	Authorised Maintenance Data

Superseded

AME	Aeromedical Evacuation
AMM	Aircraft Maintenance Manual
AMO	Approved Maintenance Organisation
AMP	Aircraft Maintenance Programme
AMS	Airworthiness Management System
AMSL	Above Mean Sea Level
AMTDU	Air Movements Training and Development Unit
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
ANSPC	Air Navigation Service Provider Certificate
ANSPE	Air Navigation Service Provider Exposition
AO	Above Obstacles
APTO	Aviation Physiology Training Officer
APU	Auxiliary Power Unit
APV	Approach Procedure(s) with Vertical Guidance
ARFF	Aerodrome Rescue and Fire Fighting
ARP	Aerodrome Reference Point
ARP	Aerospace Recommended Practice
AS	Accomplishment Summary
AS/NZS	Australia/New Zealand Standards
ASAMP	Aviation Safety Acquisition Management Plan
ASH	Area Safe Height
ASI	Aircraft Structural Integrity
ASIC	Air and Space Interoperability Council

Superseded

ASIMP	Aircraft Structural Integrity Management Plan
ASIP	Aircraft Structural Integrity Program
ASM	Aviation Safety Management
ASMS	Aviation Safety Management System
ASO	Aviation Safety Officer
ASOR	Aviation Safety Occurrence Report (replaced by ASR)
ASR	Aviation Safety Report
AT&E	Acceptance Test and Evaluation
ATA	Air Traffic Advisory
ATA	Air Transportation Association
ATACSPO	Air Training and Aviation Commons System Program Office
ATC	Air Traffic Control
ATE	Aircraft Test Equipment
ATI	Aerodrome Technical Inspection
ATM	Air Traffic Management
ATMP	Air Traffic Management Plan
ATS	Air Traffic Service
ATSB	Australian Transport Safety Bureau
AUSMPA	Australian Military Part Approval
AUSMTSO	Australian Military Technical Standard Order
AUTHOP	Authority to Operate
AVFM	Aviation Fatigue Management
AVMED	Aviation Medicine
AVMO	Aviation Medical Officer

Superseded

AVO	Air Vehicle Operator
AwB	Airworthiness Board
AwL	Airworthiness Limitation
BAC	Battlefield Airspace Control
Baro-VNAV	Barometric Vertical Navigation
BASO	Base Aviation Safety Officer
BFT	Basic Flight Trainer
BoM	Bureau of Meteorology
CA	Cabin Altitude
CAA	Civil Aviation Authority
CAAP	Civil Aviation Advisory Publication (CASA)
CAF	Chief of Air Force
CAM	Continuing Airworthiness Manager
CAME	Continuing Airworthiness Management Exposition
CAMO	Continuing Airworthiness Management Organisation
CAO	Civil Aviation Order (CASA)
CAR	Civil Aviation Regulations 1988 (Australia)
CAR	Corrective Action Request
CASA	Civil Aviation Safety Authority (Australia)
CASR	Civil Aviation Safety Regulations 1998 (Australia)
CDCCL	Critical Design Configuration Control Limitations
CDF	Chief of Defence Force
CDL	Configuration Deviation List
CENGR	Chief Engineer

Superseded

CEO	Chief Executive Officer
CFIT	Controlled Flight Into Terrain
CI	Configuration Item
CIMHS	Critical Incident Mental Health Support
CJOPS	Chief of Joint Operations
CMM	Component Maintenance Manual
CMR	Certification Maintenance Requirement
CNS	Communication, Navigation and Surveillance
CNS/ATM	Communication, Navigation, Surveillance/Air Traffic Management
CoA	Certificate of Airworthiness
COMAUSFLT	Commander Australian Fleet
COMD AVNCOMD	Commander Army Aviation Command
COTS	Commercial Off-The-Shelf
CP	Certification Programme
CPCP	Corrosion Prevention and Control Program
CRE	Configuration, Role and Environment
CRP	Core Risk Profile
CRS	Certificate of Release to Service
CS	Certification Specification (EASA)
CTAF	Common Traffic Advisory Frequency
CVR	Cockpit Voice Recorder
DAAD	Defence Aviation Authority Directive
DAH	Designated Airspace Handbook
DASA	Defence Aviation Safety Authority

Superseded

DASDRM	Defence Aviation Safety Design Requirements Manual
DASF	Defence Aviation Safety Framework
DASM	Defence Aviation Safety Manual
DASP	Defence Aviation Safety Program
DASR	Defence Aviation Safety Regulations
DAVENG	Directorate of Aviation Engineering (DASA Directorate)
DAVFMG	Defence Aviation Fatigue Management Guidebook
DAVNOPS	Directorate of Aviation Operations (DASA Directorate)
DCA	Directorate of Continuing Airworthiness (DASA Directorate)
DCAF	Deputy Chief of Air Force
DCI	Decompression Illness
DDA	Defence Disposal Agency
DDP	Declaration of Design and Performance
DEF STAN	Defence Standard (UK MoD)
Defence AA	Defence Aviation Authority
DFSB	Defence Flight Safety Bureau (DASA Directorate)
DI	Defence Instructionn
DIA	Directorate of Initial Airworthiness (DASA Directorate)
DID	Data Item Description
DLRO	Defence Long Range Operations
DoD	Department of Defence (US)
DOE	Design Organisation Exposition
DoSA	Delegate of the Safety Authority
DoSA(FT)	Delegate of the Safety Authority – Flight Test

Superseded

DSpace	Directorate of Space
DSP	Data Service Provider
DSTG	Defence Science and Technology Group
DT&E	Developmental Test and Evaluation
E3	Electromagnetic Environmental Effects
E3CP	E3 Control Program
E3CPP	E3 Control Program Plan
EASA	European Aviation Safety Agency
ECS	Environmental Control Systems
EDP	Electronic Data Processing
EDTO	Extended Diversion Time Operations
EFB	Electronic Flight Bag
ELT	Emergency Locator Transmitter
EMACC	European Military Airworthiness Certification Criteria
EMAD	European Military Airworthiness Document
EMAD 1	European Military Airworthiness Document - Definitions and Acronyms Document
EMAD R	European Military Airworthiness Document - Recognition
EMAR	European Military Airworthiness Requirements
EMAR 21	Requirements for the Certification of military aircraft and related products, parts and appliances, and design and production organisations
EMAR 66	Requirements for Military Aircraft Maintenance Licensing (of Personnel)
EMAR M	Continuing Airworthiness Requirements
EMC	Electromagnetic Compatibility
EMCON	Emissions Control

Superseded

EME	Electromagnetic Environment
EMI	Electromagnetic Interference
EMPA	European Military Part Approval
EMSEC	Emanations Security
EO	Explosive Ordnance
EPM	Engine and Propeller Manual
EROPS	Extended Range Operations
ESF	Equivalent Safety Finding
ESI	Engine Structural Integrity
ESIMP	Engine Structural Integrity Management Plan
ETOPS	Extended Twin-engined Operations
EUROCAE	European Organisation for Civil Aviation Equipment
FAA	Federal Aviation Administration (US)
FAR	Federal Aviation Regulations (US)
FDR	Flight Data Recorder
FID	Flight Information Documents
FIR	Flight Information Region
FIS	Flight Information Service
FLIP	Flight Information Publication
FLTAUTH	Flight Authorisation
FLTAUTHO	Flight Authorisation Officer
FMA	Foreign Military Aircraft
FMEA	Failure Modes and Effects Analysis
FMS	Flight Management System

Superseded

FMS	Foreign Military Sales
FO	Flying Order
FOB	Forward Operating Base
FOC	Full / Final Operational Capability
FOD	Foreign Object Damage
FOD	Foreign Object Debris
FPO	Failure Probability Objectives
FPD	Flight Procedure Design
FPS	Function and Performance Specification
FRS	Flammability Reduction Systems
FS	Flight Simulator
FSR	Field Service Representative
FSTD	Flight Simulation Training Device
FT	Flight Test
FTD	Flight Training Device
FTO	Flight Test Organisation
FTS	Flight Test Schedule
FTS	Fuel Tank Safety
FUA	Flexible Use Airspace
GCS	Ground Control Station
GM	Guidance Material
GNSS	Global Navigation Satellite System
GP	General Public
GPWS	Ground Proximity Warning System

Superseded

GR	General Requirements
GSE	Ground Support Equipment
GWEO	Guided Weapons and Explosive Ordnance (Branch)
HAOW	Height Above Obstacles Within
HERF	Hazards of Electromagnetic Radiation to Fuel
HERO	Hazards of Electromagnetic Radiation to Ordnance
HERP	Hazards of Electromagnetic Radiation to Personnel
HF	High Frequency
HF	Human Factors
HFE	Human Factors Engineering
HIC	Head Injury Criteria
HLS	Helicopter Landing Site
HMI	Human Machine Interface
HTA	Hazard Tracking Authorit
IAM	RAAF Institute of Aviation Medicine
IATA	International Air Transport Association
IAW	In Accordance With
ICA	Instructions for Continuing Airworthiness
ICAO	International Civil Aviation Organization
IEEE	Institute of Electrical and Electronic Engineers
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
IGW	Increased Gross Weight
ILS	Instrument Landing System

Superseded

IMC	Instrument Meteorological Conditions
IOC	Initial Operational Capability
IOP	Installation Operating Permit
IR	Implementing Regulation
IRE	Instrument Rating Examiner
ISA	International Standard Atmosphere
ISO	International Standards Organisation
ISO	International Organisation for Standardisation
JAA	Joint Airworthiness Authorities
JAR	Joint Airworthiness Requirements
JPR	Joint Personnel Recovery
JSSG	Joint Services Specification Guide
JUA	Joint User Airspace
KCAS	Knots Calibrated Air Speed
KIAS	Knots Indicated Air Speed
LFA	Low Flying Area
LFR	Low Flying Route
LOG	Logistics
LSALT	Lowest Safe Altitude
LSE	Life Support Equipment
LVP	Low Visibility Procedures
MAA	Military Aviation Authority
MACRI	Military Aerodrome Certification Review Item
MAML	Military Aircraft Maintenance Licence

Superseded

MAO	Military Air Operator
MAOC	Military Air Operator Certificate
MARC	Military Airworthiness Review Certificate
MATS	Manual of Air Traffic Services
MAUW	Maximum All Up Weight
MCOA	Military Certificate of Airworthiness
MCRI	Military Certification Review Item
MDOA	Military Design Organisation Approval
MDOE	Military Design Organisation Exposition
MDR	Maintenance Deficiency Report
MEL	Minimum Equipment List
MEP	Mission Essential Personnel
ME	Meteorology
MIL-HDBK-xxx	Military Handbook (US)
MIL-STD-xxx	Military Standard (US)
mlx	millilux
MMEL	Master Minimum Equipment List
MOB	Main Operating Base
MOE	Maintenance Organisation Exposition
MoS	Manual of Standards
MOTS	Military-off-the-shelf
MoU	Memorandum of Understanding
MOPS	Minimum Operational Performance Specifications
MOWP	Method of Works Plan

Superseded

MP	Management Plan
MPD	Maintenance Planning Document
MPOA	Military Production Organisation Approval
MPOE	Military Production Organisation Exposition
MPS	Mission Planning System
MPTF	Military Permit to Fly
MRP	Mission Risk Profile
MRTC	Military Restricted Type-Certificate
MSA	Minimum Sector Altitude
MSTC	Military Supplemental Type-Certificate
MTC	Military Type-Certificate
MTO	Maintenance Training Organisation
MTOE	Maintenance Training Organisation Exposition
MTOW	Maximum Take Off Weight
NAA	See CAA
NDI	Non-destructive Inspection
NDRA	Non-Defence Registered Aircraft
NDT	Non-destructive Test(ing)
NMAA	See MAA
NPA	Non-precision Approach
NPA	Notice of Proposed Amendment
NTS	Non-Technical Skills
NVD	Night Vision Device
NVG	Night Vision Goggles

Superseded

NVIS	Night Vision Imaging System
O&SHA	Operating and Support Hazard Analysis
OBOGS	On-board Oxygen Generation System
OBR	On-board Recording
OCS	Operations Compliance Statement
OEI	One Engine Inoperable
OEM	Original Equipment Manufacturer
OFI	Operational Flying Instructor
OIP	Orders, Instructions and Publications
OLS	Obstacle Limitation Surfaces
OP	Other Parties
OPCON	Operational Control
OPHAZ	Operational Hazard
OPS	Operations
OpSpec	Operations Specification
OSN	Operational Support Network
OT&E	Operational Test and Evaluation
PA	Precision Approach
PANS	Procedures for Air Navigation Services (ICAO)
PAL	Pilot Activated Lighting
PBN	Performance Based Navigation
PCN	Pavement Classification Number
PED	Portable Electronic Device
PEE	Portable Electronic Equipment

Superseded

PEM	Project Engineering Manager
PHE	Periodic Health Examination
PLT	Pilot
pMS	participating Member State
PO	Project Office
POA	Production Organisation Approval
POE	Production Organisation Exposition
PPR	Prior Permission Required
PRD	Prohibited, Restricted and Danger (areas)
PSAC	Plan for Software Aspects of Certification
PSIMP	Propulsion Systems Integrity Management Plan
PSIP	Propulsion Systems Integrity Program
QAI	Qualified Aviation Instructor
QFI	Qualified Flying Instructor
QHI	Qualified Helicopter Instructor
QM	Quality Manager
QMS	Quality Management System
QTP	Qualified Test Pilot
RA	Restricted Area
RDS	Runway Distance Supplement
RM	Responsible Manager
RM	Risk Management
RMA	Risk Management Authority
RMP	Risk Management Plan

Superseded

RNAV	Area Navigation
RNP	Required Navigation Performance
RP	Remote Pilot
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
RPS	Remote Pilot Station
RPT	Regular Public Transport
RTCA	Requirements Technical Commission for Aeronautics
RTCA	Radio Technical Commission for Aeronautics
RVR	Runway Visual Range
RVSM	Required Vertical Separation Minima
SAE	Society of Automotive Engineers
SAF	Ship Aviation Facility
SAR	Search and Rescue
SARPS	Standards And Recommended Practices (ICAO)
SATCO	Senior Air Traffic Control Officer
SAVMO	Senior Aviation Medical Officer
SB	Service Bulletin
SBAS	Satellite Based Augmentation System
SESHA	Specialist Employment Stream Health Assessment
SFARP	So Far As is Reasonably Practicable
SFI	Special Flying Instructions
SHA	Safety Hazard Analysis
SHOL	Ship Helicopter Operating Limits

Superseded

SI	Standing Instructions
SI	Structural Integrity
SIRE	Senior Instrument Rating Examiner
SME	Subject Matter Expert
SMS	Safety Management System
SOIU	Statement of Operating Intent and Usage
SOW	Statement of Work
SPC	Service Provision Conditions
SPO	Systems Program Office
SRM	Safety Risk Management
SRM	Structural Repair Manual
SRSPO	Surveillance and Response Systems Program Office
SSAMA	Single Service Aviation Medical Advisor
SSG	System Safety Group
SSP	System Safety Program
STANAG	Standardisation Agreement (in NATO)
STC	Supplemental Type Certificate
STD	Synthetic Training Device
T&E	Test and Evaluation
TC	Type Certificate
TCAE	Type Continued Airworthiness Exposition
TCB	Type Certification Basis
TCDS	Type Certificate Data Sheet
TLS	Through Life Support

Superseded

TMUCD	Temporarily Medically Unfit Controlling Duties
TMUFF	Temporarily Medically Unfit for Flying (related duties)
TO	Technical Order (USAF)
TRR	Test Readiness Review
TSO	Technical Standard Order (FAA)
UA	Uncrewed Aircraft
UAS	Uncrewed Aircraft System
UASOP	Uncrewed Aircraft Systems Operating Permit
UAT	Uncrewed Aerial Target
UCS	UA Control Station
UK MoD	Ministry of Defence (UK)
ULD	Underwater Locating Device
UPT	User Preferred Trajectories
US DoD	United States Department of Defence
USAF	United States Air Force
USN	United States Navy
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
WHMP	Wildlife Hazard Management Plan
WHRA	Warbird, Historic and Replica Aircraft

Superseded

Glossary

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Superseded

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Superseded

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Superseded

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Superseded

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Superseded

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Superseded

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Superseded

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Superseded

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Superseded

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include,

Superseded

but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Superseded

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Superseded

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Superseded

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Superseded

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a ‘cabin altimeter’.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Superseded

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Superseded

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Superseded

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Superseded

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Superseded

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Superseded

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Superseded

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Superseded

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Superseded

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

Superseded

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

Superseded

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Superseded

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Superseded

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

Superseded

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Superseded

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

Superseded

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Superseded

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Superseded

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Superseded

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Superseded

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Superseded

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Superseded

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

Superseded

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

Superseded

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.
2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Superseded

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Superseded

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Superseded

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Superseded

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Superseded

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Superseded

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Superseded

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Superseded

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Superseded

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Superseded

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

‘Should’ is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the ‘tail number’ and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Superseded

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Superseded

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

Superseded

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Superseded

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a ‘system’, within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

Superseded

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Superseded

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

Superseded

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Superseded

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a 'model'. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Airworthiness Standards *

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Basic Aircrew Qualification *

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Basic Flight Trainer (BFT) *

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Basic Regulation

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Cabin Altitude *

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Certification

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Cockpit Voice Recorder (CVR) *

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Definitions with no superscript have been sourced directly from the European Military Airworthiness Document (EMAD 1). Those definitions and terminologies with a superscript * are DASP specific and have been derived or contextualised for Australian use by the Defence Aviation Safety Authority (DASA).

2D Approach Operation *

An approach conducted by reference to instrument displays that provide lateral (directional) navigation information. This includes all Non-Precision Approaches (NPA) flown without requiring reference to vertical navigation guidance.

3D Approach Operation *

An approach conducted by reference to instrument displays that provide both lateral (directional) and vertical navigation information. This includes all Precision Approaches (PA) and Approach Procedures with Vertical guidance (APV) using Satellite Based Augmentation System (SBAS) or Barometric Vertical Navigation (Baro-VNAV). A 3D approach operation is characterised by a Decision Altitude (DA) and does not have a Missed Approach Point.

Above Obstacles (AO) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface.

Acceptable Means Of Compliance (AMC) *

Information published by DASA to identify a means of meeting one or more requirements of the DASR. Regulated entities are not required to comply with AMC and may instead propose an Alternative Means of Compliance (AltMoC) to DASA. Any such proposal will be subject to separate assessment by DASA to determine whether the approach is compliant with the DASR.

Acceptance Test And Evaluation (AT&E) *

An acceptance function used by Defence to verify that a system complies with the defined acceptance requirements. AT&E is used to establish specification compliance and verify airworthiness.

Accountable Manager (AM) *

Person designated by the Approved Organisation, and identified in the Organisation Exposition or Compliance Statement, who is accountable for maintaining safety standards required by relevant DASR and any additional standards specified. Typically, this is a key figure who has influence within the organisation and the ability to make appropriate resource decisions.

Superseded

ACD Equipment*

Equipment employed in ACD via Airdrop, Airland and External Lift on transport or rotary wing Aircraft; including ADE, pallets, restraint devices, chains, straps, nets and loading devices.

Adequate Aerodrome *

An aerodrome on which an aircraft can be operated, taking account of the applicable performance requirements, runway characteristics and other relevant support facilities and services.

ADF Cadets *

A collective reference to the three cadet organisations, namely, the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets (Defence Act 1903, section 62).

Advisory Circular (AC) *

A document issued by the Authority to promulgate important information to the Defence Aviation regulated community but does not mandate any action.

Advisory Material

Material that provides interpretation of technical airworthiness requirements and standards to assist in understanding and implementation. It also provides guidance on methods and procedures that are in compliance with technical airworthiness requirements and standards. Advisory material, including the described methods and procedures, is not mandatory and organisations may choose to follow other means of demonstrating compliance.

Aerial Delivery *

The process of dispatching cargo or stores from an operating aircraft in flight.

Aerial Delivery Equipment

Equipment employed on transport or rotary wing Aircraft in the aerial delivery of materiel; including slings, platforms, containers, parachutes, rigging materials, cloths, cords, tapes, threads and webbing (Note: Aerial delivery equipment does not include equipment employed in the aerial delivery of personnel).

Aerodrome (AD) *

A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of fixed wing and rotary wing aircraft.

Superseded

Aerodrome Apron Areas *

The surfaces intended to accommodate aircraft for purposes of loading or unloading air cargo, passengers, fuelling, parking or maintenance, excluding hangars.

Aerodrome Certificate *

A certificate granted to an Aerodrome Operator by the Authority under DASR 139 that certifies the aerodrome meets the technical specifications outlined in its certification basis.

Aerodrome Manager (ADM) *

The representative of the Aerodrome Operator, responsible for ensuring:

a. a Certified Aerodrome continues to maintain its certified status; and

b. for non-certified aerodromes, the aerodrome is safe and fit-for-purpose as required.

Aerodrome Manoeuvring Areas *

The surfaces of the aerodrome used for the take-off, landing, and taxiing of aircraft, excluding aprons.

Aerodrome Movement Areas *

A term describing the combined manoeuvring areas and apron areas, excluding hangars.

Aerodrome Operator (AD OPR) *

The Defence organisation accountable for the overall safe operations of a Defence Aerodrome.

Aerodrome Rescue And Fire Fighting (ARFF) *

A service whose principal objective is the preservation of life and materiel in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome.

Aeronautical Data

A representation of fact, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

Aeronautical Data Originator*

An entity responsible for providing source Aeronautical Data and Aeronautical Information to AIS providers for publication in the Integrated Aeronautical Information Package and on aeronautical charts.

Superseded

Aeronautical Information *

Information and other required data necessary for the safety and efficiency of air navigation.

Aeronautical Information Service (AIS)

A service established within the defined area of coverage responsible for the provision of Aeronautical Data and Aeronautical Information necessary for the safety, regularity and efficiency of air navigation.

Aeronautical Life Support Equipment (ALSE) *

Safety or mission equipment to be carried or worn by crew or passengers when operating aircraft in a military configuration, role or environment.

Aeronautical Product *

Includes type-certificated or restricted type-certificated aircraft, engines, propellers and AUSMTSO approved Auxiliary Power Units (APU).

Aeroplane *

A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight, but does not include a power-assisted sailplane.

Air Battle Management (ABM)*

The control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities.

Air Battle Management Operations (ABMOps)*

Those ABM operations provided to military operations as defined in the Air Battle Management Operator Certificate (ABMOC) and the accompanying Operations Specification (OpSpec).

Air Battle Management Operator (ABMO)*

A generic term for an organisation certified by a Military Aviation Authority (MAA) to conduct Air Battle Management.

Superseded

Air Battle Management Operator Certificate (ABMOC)*

A certificate issued by DASA to authorise an Air Battle Management Operator (ABMO) to provide Air Battle Management Operations (ABMOps) as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Air Capable Ship *

A sea based facility from which aircraft can take-off, be recovered, or routinely receive and transfer logistic support.

Air Cargo Delivery (ACD)*

A process that involves the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo—either on the ground, surface or while in the air. ACD includes Airland, Airdrop and External Lift.

Air Cargo Delivery Service Provider (ACDSP)*

An organisation approved by DASA to provide an Air Cargo Delivery (ACD) service to a defined scope.

Air Cargo Delivery Service Provider Certificate (ACDSPC)*

A certificate issued by DG DASA to authorise an Air Cargo Delivery Service Provider (ACDSP) to provide Air Cargo Delivery (ACD) Services as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR ACD.

Air Display*

Any event, or rehearsal for any event, at which Display Flying or Flypasts, are deliberately performed for the purpose of providing an exhibition of Defence Aviation's capabilities, values and professionalism.

Air Force Interoperability Council (AFIC) *

An international organisation which provides a framework for the air forces of Australia, Canada, New Zealand, United Kingdom and United States to work collaboratively to enhance coalition expeditionary air and space interoperability.

Air-Launched Store

An aircraft store able to be intentionally separated from the aircraft in flight.

Superseded

Air Navigation Service Provider Certificate *

A certificate issued by the Defence AA to authorise an Air Navigation Service Provider (ANSP) to provide Air Navigation Services (ANS) as defined in the accompanying Service Provision Conditions (SPC) and in accordance with DASR.

Air Navigation Services (ANS) *

Those services provided to air traffic during all phases of operations (approach, aerodrome and enroute). ANS comprises Air Traffic Management (ATM), Communication Navigation Surveillance (CNS) systems services, Meteorological Services for air navigation (MET), Aeronautical Information Services (AIS), Aeronautical Data services (DAT), Flight Procedure Design Services (FPD) and ATM network functions.

Air Navigation Services Provider (ANSP) *

A generic term for an organisation certified by a National Aviation Authority (NAA) and / or a Military Aviation Authority (MAA) to provide an Air Navigation Service.

Air Operator Certificate (AOC) *

A certificate granted by a National Aviation Authority permitting the conduct of commercial flying activities.

Air Traffic Advisory (ATA) *

An ATS subcategory provided within advisory airspace to help ensure separation, in so far as is reasonably practicable (SFARP), between aircraft through the provision of advisory information that may be used by pilots to avoid collision with other aircraft.

Air Traffic Control (ATC) *

A service provided for the purpose of:

a. preventing collisions between aircraft

b. on the manoeuvring area, preventing collisions between aircraft and obstructions

c. expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Service *

A service provided for the purpose of:

(a) preventing collisions between

i. aircraft

ii. aircraft and obstructions on the manoeuvring area

Superseded

(b) expediting and maintaining an orderly flow of air traffic.

The Air Traffic Control Service comprises any one or combination of: an area control service, an approach control service and an aerodrome control service.

Air Traffic Management (ATM) *

A generic term encompassing the dynamic, integrated management of air traffic and airspace in a safe, economical and efficient manner through the provision of facilities and seamless services in collaboration with all parties involving airborne and ground-based functions. The three subsets of ATM are Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM), although only ATS is regulated under DASR.

Air Traffic Management Network Functions*

Provision of the information communications technology network that connects the range of ATM systems.

Air Traffic Management Plan (ATMP) *

A plan that outlines the systems and processes that will be used to ensure the safe operation of Uncrewed Aircraft Systems (UAS) in conjunction with other air traffic.

Air Traffic Services (ATS) *

A term which collectively encompasses the Air Traffic Control Services (area control service, approach control service and aerodrome control service), an air traffic advisory service, an alerting service, a flight information service and battlefield airspace control.

Air Vehicle Operator (AVO) *

A qualification awarded to a trained and competent individual who controls a Certified, Specific or Open Category UAS during flight time.

Aircraft *

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the earth's surface (Civil Aviation Act 1988, section 3).

Aircraft Altitude *

The vertical distance above mean sea level as indicated by an externally sourced altimeter set to either QNH (atmospheric pressure adjusted to sea level) or standard pressure of 1013.2 millibars, as appropriate to the procedures being used.

Superseded

Aircraft Captain *

A pilot designated as being in command and charged with the safe and effective conduct of the aircraft during flight. Analogous with the civil term 'pilot–in–command'.

Aircraft Controller *

A generic term used by aviation medicine describing those specialist personnel who may issue control or advisory information to aircraft that the pilot may base flight decisions upon.

Aircraft Flight Manual (AFM)

A manual, associated with Military Type Certificate, containing limitations within which aircraft is to be considered airworthy, and instructions and information necessary to the flight crew for the safe operation of the aircraft.

Aircraft Maintenance Programme

A document which describes or incorporates by reference the specific scheduled maintenance tasks and their frequency of completion, the associated maintenance procedures and related maintenance standards and practices necessary to preserve the airworthiness of those aircraft to which it applies.

Aircraft Oxygen System *

A means to store and supply aviators' breathing oxygen.

Aircraft Propulsion System *

The aircraft propulsion system includes, but is not limited to, the engine and propeller, including sub-systems, accessories and controls.

Aircraft Stores *

Any devices, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the items are intended to be separated in flight from the aircraft. Aircraft Stores include missiles, rockets, bombs, mines, torpedoes, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

Aircraft Stores Compatibility

The ability of an aircraft, stores, stores management systems, and related suspension equipment to coexist without unacceptable effects of one of the aerodynamic, structural, electrical, or functional characteristics of the others under all flight and ground conditions expected to be experienced by the aircraft-store combination. A particular store may be compatible with an aircraft in a specific

Superseded

configuration, although not necessarily so with all pylons (or stations) under all conditions.

Aircraft Structure *

Aircraft components that are required to carry loads in order to perform their intended functions. The structure of an aircraft includes the fuselage, wing, empennage, landing gear, helicopter rotor and drive systems, control systems and surfaces, engine mounts, radome, nacelles, inlets, store mounts, structural operating mechanisms and other components that perform a structural function.

Aircrew *

A generic term describing personnel whose primary duties are conducted within the confines of an aircraft during flight time. Aircrew are deemed passengers unless authorised as crew or as a mission essential passenger for the specific aviation mission.

Aircrew Instructor *

A generic term describing a crew member who is qualified and authorised to deliver instruction in the airborne simulated or airborne environment.

Airdrop

Delivery of personnel or cargo from Aircraft in Flight.

Airland

The delivery of personnel, materiel or forces from an Aircraft after it has landed.

Airside *

The movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft and the personnel working with those aircraft.

Airside Breach *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person beyond the designated airside protected area.

Airspace *

The zone next to the earth consisting of atmosphere capable of sustaining flight.

Superseded

Airspace Management *

The design, allocation, integration, and regulation of airspace, including the application of airspace usage procedures to ensure the airspace is appropriate for the mission or activity.

Airworthiness

The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

Airworthiness Board (AwB) *

An independent board of review appointed by the Defence AA to advise and make recommendations on airworthiness certification and to review the in-service management of Aviation Systems.

Airworthiness Codes

Product airworthiness requirements, applicable to the design of a product, that are approved by a competent airworthiness authority for the use with standardised aircraft categories Examples include, but not limited to EASA Certification Specifications (CS), FAA Federal Aviation Regulations (FAR) and Standardisation Agreements (STANAG) and Defence Standards (DEF STAN).

Airworthiness Directive (AD)

A document issued or adopted by the Authority which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

Airworthiness Limitation (AwL) *

An item arising from the certification process that has been shown to have failure mode(s) associated with an unsafe condition. The terms Airworthiness Limitation Item or Airworthiness Limitation Instruction are also used in certain sections of the implementing regulations.

Airworthiness Standards *

Detailed and comprehensive design and safety criteria applicable to the category of aeronautical product (aircraft, engine or propeller).

Alerting Service *

An ATS subcategory provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Superseded

Alternative Means Of Compliance (AltMoC) *

An alternative to an Acceptable Means of Compliance or a means of complying with a requirement for which no AMC exists. The entity proposing the AltMoC must demonstrate to DASA that it satisfies the regulation.

Application Identifier (AI) *

The A or N prefix of the Australian military aircraft registration number. For example, A41 for C–17 Globemaster III, N48 for MH–60R Seahawk.

Approved Organisation

That which has been assessed by the Authority and deemed to meet their applicable regulations or requirements.

Area Navigation (RNAV)

Method of navigation that permits aircraft operation on any desired flight path within the coverage of ground-based or spaced-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: *Area navigation includes PBN as well as other operations that do not meet the definition of PBN.*

Area Safe Height (ASH)*

The lowest altitude which will provide safe terrain clearance within a defined area.

Artefact

An airworthiness related document, either hardcopy or electronic, that can be used as evidence in making an airworthiness judgement.

Authorised Maintenance Data (AMD) *

Those instructions, approved for use by the responsible Authority, required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to, maintenance manuals, technical maintenance plans, servicing schedules, component lifing policies and inspection programs.

Authority To Operate (AUTHOP) *

Authorisation to operate a non-Defence registered aircraft.

Superseded

Autonomous Aircraft *

An uncrewed aircraft that does not require pilot intervention in the management of flight.

Autonomous Operation *

An operation during which an uncrewed aircraft is operating without pilot intervention in the management of flight.

Aviation Fatigue Management (AVFM) *

The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the task or operation, in order to minimise the adverse effects of fatigue on safety during those activities.

Aviation Medical Certificate *

A document provided by an AVMO attesting to the medical fitness of a person to conduct flying related duties.

Aviation Medical Officer (AVMO) *

A medical practitioner who is recognised by Surgeon General–ADF as being appropriately trained and authorised to provide aviation medicine support to Defence Aviation.

Aviation Medicine (AVMED) *

The component of military medicine that is concerned with the interaction between the aerospace environment and human physiology, psychology and pathology.

Aviation Physiology Training Officer (APTO) *

A person who is recognised by a Single Service Aviation Medical Advisor (SSAMA) as being appropriately trained and authorised to provide supplemental aviation medicine training support.

Aviation Safety *

A state in which risks to personnel arising from aircraft operations are eliminated or otherwise minimised so far as is reasonably practicable through a continuing process of hazard identification and safety risk management.

Aviation Safety Acquisition Management Plan (ASAMP) *

A document that describes the safety strategy to introduce an aircraft type into Defence service. May include the safety strategy to achieve airworthiness, manage flight operations, and achieve broader capability/logistics milestones

Superseded

Aviation Safety Event *

Any event where an aviation system (including the human element) fails to perform in the expected manner and, adversely affects, or could adversely affect, the safety or airworthiness of an aviation system or third party.

Aviation Safety Issue *

A characteristic of an organisation or a system that can reasonably be regarded as having the potential to adversely affect the safe operation of an aircraft, aviation-related equipment or products and services.

Aviation Safety Management (ASM) *

A function integral to safe flying operations and requires processes and procedures to ensure competence of commanders and all personnel associated with flying operations, adherence to authorised orders and instructions, promotion of and maintenance of high levels of aviation safety awareness, and systematic evaluation and management of risk in operations.

Aviation Safety Management System (ASMS) *

A systematic approach to managing aviation safety, including the necessary organisational structures, accountabilities, policies and procedures. Reference to SMS in DASR means ASMS unless expressly stated to the contrary.

Aviation System *

The integration of equipment, personnel, organisation, publications and procedures to achieve an aviation role. Aviation systems include: Defence registered aircraft types, non-Defence registered aircraft types, Uncrewed Aircraft Systems (UAS).

Base Maintenance

Maintenance tasks falling outside the criteria for Line Maintenance.

Basic Aircrew Qualification *

The qualification aircrew are awarded upon becoming Type Rated.

Basic Flight Trainer (BFT) *

A device, which does not meet the requirements for categorisation as a Flight Simulator / Flight Simulator Training Device, approved for the purpose of permitting experience acquired therein to be credited towards meeting a sub-set of requirements for aircrew qualification, categorisation or currency.

Superseded

Basic Regulation

The DASR Basic Regulation was withdrawn on 01 September 2022. Its purpose was to establish a framework for the definition and implementation of common safety requirements and administrative procedures in the field of military aviation.

Battlefield Airspace Control (BAC) *

An Air Traffic Service (ATS) subcategory provided in assigned airspace that supports the air, land or amphibious scheme of manoeuvre by providing airspace management, coordination and de–confliction of joint fires and effects in that airspace in order to facilitate safe and efficient access to airspace through a combination of coordination with adjoining civil/military agencies and through the application of both procedural and positive control methods.

Cabin Altitude *

The pressure altitude inside the pressure hull of the aircraft and as indicated on a 'cabin altimeter'.

Category Assessor *

An experienced aircrew member who is qualified and authorised for the purpose of operational training and assessment of other aircrew within the same Basic Aircrew Qualification.

Certificate Of Airworthiness (CoA) *

A certificate issued to aircraft which conform to a type certificate that has been issued in accordance with DASR.21 (or if appropriate and if national regulations allow, based upon a Civil Type Certificate issued by a recognised Civil Authority.

Certificate Of Release To Service (CRS)

This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out.

Certification

Recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

Certification Maintenance Requirements (CMR) *

Scheduled maintenance that is required by the design to help show compliance with the appropriate type certification basis by detecting the presence of a safety-significant latent failure that would result in a hazardous or catastrophic failure condition.

Superseded

Certification Privileges *

The authority to issue a Certificate of Release to Service (CRS). Where on-aircraft maintenance has occurred, the CRS must be issued by the holder of a relevant MAML. Component certifying staff must be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE. Individuals issuing a CRS for components are not required to hold a MAML.

Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate is in force.

Certified Life Limit For Components *

Specified life limit after which the components should be retired.

Certifying Staff

Personnel responsible for the release of an aircraft or a component after production and/or maintenance.

Charter *

The commercial renting of a complete aircraft, crew and maintenance system for tasking undertaken within the bounds of a legally binding contract.

Check Captain *

An experienced Aircraft Captain who is qualified and authorised for the purpose of assessing operational flying skills of other pilots.

Chief Executive Officer (CEO)

Person who is responsible for a civil company within which the Approved Organisation operates. The CEO may report to a board of directors and may appoint other managers, or they may be one of very few people in a small company. In relation to EMAR/DASR, the CEO is mentioned as they may be senior to the Accountable Manager.

Civil Aviation Authority (CAA)*

The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport). Source: ICAO Doc 9734 Safety Oversight Manual Part A.

Superseded

Civil Register *

The CASA-maintained Australian civil aircraft register. Aircraft on this register are referred to as civil registered aircraft and will be appropriately marked with a 'VH' registration (e.g. VH-ABC). This may be extended to include similar registers maintained by other NAA.

Civil Registered Aircraft *

An aircraft that is registered by a National Airworthiness Authority.

Cockpit Voice Recorder (CVR) *

A device that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the cockpit and communications to, from and between the flight crew members.

Command And Control (C2) Link (UAS Context) *

The data link between a remotely piloted aircraft and a remote pilot station for the purposes of managing flight.

Command Clearance *

An approval to deviate from an aviation system's approved configuration, role, environment, limitation or condition, when mission requirements cannot be achieved otherwise.

Communications, Navigation and Surveillance Systems (CNS Services)*

Services to ensure the availability, continuity and effective performance of Communications, Navigation and Surveillance systems which are used, or intended to be used, in the delivery of an ANS.

Competency *

The capacity of an individual to effectively and safely complete a task consistently, to a required standard of performance, through the application of appropriate skills, knowledge and attitude.

Compliance Demonstration

Activities to demonstrate that the product, part or appliance complies with the requirements in the Certification Basis.

Component Maintenance Manual (CMM)

A formal document which details the way in which off-aircraft maintenance instructions on the specified component shall be accomplished.

Superseded

Concern (Independent Board Of Review) *

A review finding which identifies a critical aviation safety issue that requires immediate action, and if not resolved by a specified date, will highly likely result in the limitation or withdrawal of aviation safety Instruments.

Configuration *

The functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof, as set forth in technical documentation (which includes specifications, standards and drawings) and ultimately achieved in a product.

Configuration Control

A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified.

Configuration Item (CI)

Any component, module, sub-component, equipment, technical manuals, software, ground support equipment, which can be submitted to the configuration control process.

Configuration Management

A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life.

Configuration Role and Environment (CRE)*

The configuration (physical and functional attributes of the aircraft), role (how the aircraft is flown and employed) and environment (the physical and functional conditions in which the aircraft is operated); as specified in an aviation system's Statement of Operating Intent and Usage (SOIU).

Consequence *

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.

Contemporary Crash Protection Design Requirement (CCPDR) *

Design requirements prescribed by a National Aviation Authority (NAA) and /or a Military Aviation Authority (MAA), which form the basis to certify the aircraft Type.

Superseded

Continued (Design) Airworthiness

All tasks to be carried-out to verify that the conditions under which a type- certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity.

Continuing Airworthiness

All of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

Continuing Airworthiness Management Organisation (CAMO) *

Organisation approved by the Authority that ensures on behalf of the Military Air Operator (MAO), that each aircraft they manage is of the approved configuration available to meet the intended purpose and safe to fly.

Continuing Airworthiness Manager (CAM) *

Person designated by the MAO Accountable Manager to be responsible for the management and supervision of MAO continuing airworthiness activities.

Co–Pilot *

A pilot qualified and authorised to manipulate the flight controls of an aircraft during flight under the command of an Aircraft Captain.

Corrective Maintenance *

Those maintenance tasks necessary to restore items to a specified condition or to restore them to serviceability after failure.

Crash Protection (CP) *

Requirements designed to protect occupants and improve the chances of survival, during the initial impact phase as well as subsequent evacuation and post evacuation phases of a survivable crash.

Crew *

Competent and authorised individuals, including personnel authorised to undertake aircraft type qualification training, who may operate or interface with an aircraft's systems during flight specific aviation mission, including temporary equipment installations. Crew is broken into subsets of flight crew and mission crew.

Superseded

Crew Station *

A position, seated or otherwise, within an aircraft from which a crew member may perform an operational function.

Critical Design Configuration Control Limitations (CDCCL) *

These identify the critical design features such as proper wire separation, proper installation of a panel gasket, maximum acceptable bonding jumper resistance levels, etc., that must be maintained in exactly the same manner throughout the life of the aircraft in order to comply with the type certificate and maintain airworthiness. The purpose of CDCCL is to provide instructions to ensure these critical features are present throughout the life of the aircraft and are inspected and verified when alterations, repairs, or maintenance actions occur in the area.

Critical Infrastructure * (UAS Context)

A facility that, if damaged by an Uncrewed Aircraft (UA), may have an immediate and adverse effect on Mission Essential Personnel (MEP) or General Public (GP) health and safety.

Critical Parts *

Critical parts are identified by the design approval holder in accordance with the applicable Type Certification Basis requirements. Critical parts include, but are not limited to, those parts required to be identified by the following airworthiness code clauses: FAR / CS 27.602, FAR / CS 29.602, FAR 33.70 (termed engine life-limited parts), CS-E 515, FAR 35.16, CS-P 150 and CS-APU 210.

Critical Phase Of Flight *

A phase of flight determined by aircraft specific orders, instructions and publications (OIP) whereby only essential duties for the safe operation of the aircraft are permitted.

Currency *

A prescribed period during which a qualification or skill is valid without further assessment.

Dangerous Goods *

Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in authoritative technical instructions or which are classified according to those instructions. Dangerous goods include explosives, flammable liquids, gases, corrosives and chemically reactive or acutely (highly) toxic substances. Authoritative technical instructions include ICAO – Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA –- Dangerous Goods Regulations (DGR) Manual.

Superseded

Data Integrity

Assurance that Aeronautical Data and its value has not been lost or altered since the data origination or authorised amendment.

Data Services*

The provision of aeronautical databases either directly to aircraft operators for loading into air or ground-based mission systems, or to Aeronautical Information Services providers. This Aeronautical Data does not include data not specifically relevant to air navigation such as aircraft weight and balance data.

Data Service Provider

A Data Service Provider receives, assembles, translates, selects, formats, distributes or integrates Aeronautical Data and information that is released as an authoritative source for use in aeronautical databases on aircraft or in operational aviation systems, applications and equipment.

Declaration Of Compliance

A statement, signed by the Head of Design Organisation or by an authorised representative, to show compliance with all applicable type-certification basis and, where applicable, environmental protection requirements. It declares that the product is airworthy within the specific design limitations.

Decompression Illness (DCI) *

A term referring to a group of clinical conditions that may result from exposure to a change in ambient pressure.

Defect *

A fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

Defence *

Civilian and Service elements of the Defence portfolio.

Defence Aircraft *

Aircraft operated by or on behalf of Defence (see also Military Aircraft).

Superseded

Defence Area (DA) *

An area intended to protect public safety by giving notice of a practice, prohibiting entry to, and allowing the removal of unauthorised people, vehicles, vessels or aircraft from a DA when an authorised Defence operation or practice is in progress. DA's may also be referred to as Defence training areas and ranges.

Defence Aviation *

The design, construction, maintenance and operation of any aircraft owned, leased, hired or chartered by Defence; any aircraft operated exclusively for or on behalf of Defence; any aircraft for which CASA has placed statutory airworthiness responsibilities on Defence.

Defence Aviation Authority (Defence AA) *

Appointment by the Secretary of Defence and the Chief of the Defence Force (SEC/CDF) to the Chief of Air Force (CAF) assigning accountability for the regulation and oversight of all aspects of Defence aviation.

Defence Aviation Authority Directive (DAAD) *

Directive issued by the Defence AA to promulgate immediate and binding requirements to authorise or restrict a course of action in relation to an Aviation System.

Defence Controlled Land * (UAS Context)

Land where Defence controls access by the General Public (GP), such that Defence can ensure, for example: UAS operations can be conducted which are not in the proximity of, or overhead, the GP.

Defence Employee *

A person employed in the Department of Defence under section 22 of the Public Service Act 1999.

Defence Long Range Operations (DLRO) *

Involves fixed-wing multi-engine turbine aircraft, operated by Defence, which may carry Defence personnel on long-range flights, as determined by the MAO.

Defence Member *

A person as defined in section 3 of the Defence Force Discipline Act 1982, means (1) a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or (2) a member of the Reserves who is rendering continuous full-time service or is on duty or in uniform.

Superseded

Defence Organisation *

The Australian Defence Force and the Department of Defence.

Defence Personnel *

In the context of DASR applicability, Defence Personnel means all Defence Employees, Defence Members, ADF Cadets and ADF Cadet Staff and foreign equivalents while serving with Defence.

Defence Register *

The Defence aircraft register maintained by DASA.

Defence Registered Aircraft *

An aircraft listed on the Defence Register.

Delegate Of The Safety Authority (DoSA) *

An individual, external to the Defence Aviation Safety Authority, who has been formally assigned an Authority responsibility and is considered an agent of the Authority when exercising that delegation. The individual may be external to Defence.

Design Change

A change in type design (described in DASR 21.A.91 - Classification of change in type design).

Detect And Avoid *

The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Developmental Test And Evaluation (DT&E) *

An engineering function used by the manufacturer, or a nominated test agency, to establish that a system complies with the design requirements.

Display Flying*

A subset of an Air Display whereby the flying activity is designed to demonstrate handling and operational capabilities, in the approved envelope for the Aircraft Type, using a display sequence flown by specifically qualified Crew.

Superseded

DLRO (Defence Long Range Operations) Area Of Operations *

The area of operations, over land or water, where an aircraft's diversion time is outside of the nominated threshold time.

DLRO Benign Environment *

For the purpose of DLRO, a benign operating environment is one where military aircraft operations are largely 'civil Regular Public Transport (RPT) like'. Therefore, flight profiles will typically involve take-off, climb to altitude, cruise / loiter at altitude and a decent / hold at the nominated destination. In addition, a benign operating environment is associated with numerous DLRO aerodromes / alternates, high reliability and availability of Communication, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) services.

DLRO Challenging Environment *

For the purpose of DLRO, a challenging operating environment is one where military aircraft operations are potentially conducted in a contested environment and within complex airspace. Therefore, flight profiles will typically involve low level nap of earth flight, manoeuvring and defensive action. In addition, a challenging environment is associated with limited aerodromes / alternates and potentially reduced CNS and ATM services / facilities.

DLRO Maximum Diversion Time *

The maximum time an aircraft can fly from an adequate aerodrome, based on endurance afforded by the aircraft's most time limited system at the One Engine Inoperable (OEI) speed, in International Standard Atmosphere (ISA) still air conditions.

DLRO Significant Event *

For the purposes of DLRO, a significant event is where there is any system malfunction, degradation or other in-flight event, which requires the flight crew to make a decision to turn back, divert or continue at an increased level of alertness.

DLRO Significant System *

A propulsion system or any other aircraft system whose failure could adversely impact the safety of a DLRO flight, or whose function is required for continued safe flight and landing.

DLRO Threshold Time *

A 'threshold time' is the maximum flight time to an adequate aerodrome (at OEI, ISA still air conditions) before a DLRO approval is required.

Superseded

Dry Lease *

A Defence aircraft lease for an aircraft that does not include, maintenance or insurance requirements.

Dual Flight *

Flight conducted in an aircraft or accredited Flight Simulation Training Device while receiving training from a flying instructor.

Emergency Locator Transmitter (ELT) *

Equipment which broadcasts distinctive signals on designated frequencies and depending on application, may be automatically activated or be manually activated.

Engineering Authority (EA) *

The authority assigned expressly to an organisation or to an individual within an organisation to undertake specific engineering activities.

Explosive

A substance manufactured with a view to producing an explosion or pyrotechnic effect.

Exposition*

The document or documents that contain the material specifying the scope of work deemed to constitute sufficient evidence to justify organisational approval and showing how the organisation complies with a DASR.

Extension

Inclusion of additional topics to Category A, B1 and B2 Military Aircraft Maintenance Licences (MAML) as detailed in DASR 66 Appendix I (which includes Modules 55–55) that are not part of the applicable modules for that category of MAML.

External Lift*

The external carriage of air cargo by rotary wing aircraft.

External Service Providers *

Contractors, consultants and professional service providers engaged by Defence.

Superseded

Fatigue *

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental or physical activity) that can impair a member's alertness and ability to safely operate an asset or perform safety-related duties.

First Pilot *

The Aircraft Captain or a type rated pilot authorised as crew who is occupying a seat with access to flight controls and actually in control of the aircraft.

Fit For Flight

Condition of a type design being certified as compliant with applicable airworthiness requirements as well as of an aircraft having been serviced and inspected as meeting the certified design and prepared for the intended flight.

Flight *

a. In the case of a heavier-than-air Aircraft, the operation of the Aircraft from the moment at which the Aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after being airborne. (Note: DASA does not intend for the definition of Flight to affect the way in which environmental commanders define 'Flight Time'. Environmental commanders may define 'Flight Time', or delegate the definition of 'Flight Time' to FEG Commanders).

b. In the case of a lighter-than-air Aircraft, the operation of the Aircraft from the moment when it becomes detached from the surface of the earth, or from a fixed object on the surface of the earth, until the moment when it becomes again attached to the surface of the earth or a fixed object on the surface of the earth.

Flight Authorisation *

The process through which qualified and competent Crew are approved to conduct a particular Mission, including the application of limitations or controls.

Flight Crew *

Crew, including personnel authorised to undertake aircraft type qualification training, who are charged with duties essential to the safe operation of an aircraft, including remotely piloted aircraft. Flight crew is a subset of crew.

Flight Data Recorder (FDR) *

A device that use a combination of data providers to collect and record parameters that reflect the state and performance of an aircraft.

Superseded

Flight Information Documents (FID) *

A suite of documents that includes Flight Information Publications (FLIP) aeronautical maps, aeronautical charts and similar documents that support aviation activities.

Flight Information Publication (FLIP) *

An enduring term that describes various aeronautical information designed for use primarily in the cockpit environment.

Flight Information Service (FIS) *

An Air Traffic Services (ATS) subcategory provided for the purpose of giving advice and information useful for the safe and efficient conduct of flight.

Flight Planning *

The Aircraft Captain's planning for the safe conduct of the Flight, based on considerations of:

a. Aircraft performance

b. Mission considerations

c. expected conditions on the route to be followed, or in the area of operations and at the relevant aerodromes

d. navigation sources and facilities associated with the intended route and relevant aerodromes

e. the effects of normal, emergency and operating limitations on the above.

Flight Procedure Design Services (FPD Services)*

The design, documentation and validation of flight procedures including the ongoing review and maintenance of flight procedures.

Flight Recorder *

Any type of receiver installed in the aircraft for the purpose of complementing accident/incident investigation or flight analysis, this includes a Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR).

Flight Related Operations *

Flight Related Operations refer to those operations which, while not strictly meeting the definition of 'Flight', warrant consideration of the application of Flight Authorisation and related aviation Hazard controls. Such operations may include: high-speed aborts, engine running on-loads and off-loads, rotors-turning ground events on helicopters, engine ground runs (excluding ground runs conducted by maintenance personnel as a part of routine maintenance activities) and taxiing.

Superseded

Flight Simulation Training Device (FSTD) *

A device that simulates an aircraft or part of an aircraft used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight and/or on the ground, and needs approved standards for the purpose of permitting experience acquired therein to be credited towards meeting requirements for operator qualification, categorisation or currency.

Flight Simulator (FS) *

See Flight Simulation Training Device (FSTD).

Flight Test *

A type of flying activity conducted in support of broader Defence Test and Evaluation (T&E) requirements that has any of the following characteristics:

a. flight of a not yet certified design (aircraft, propulsion systems, parts or appliances);

b. flights to demonstrate compliance to certification basis or conformity to type design;

c. flights intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft;

d. flight to evaluate a change in role or operating environment; or

e. training flights in support of the above activities.

Flight Test Pilot *

A pilot qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Test System Specialist *

A person qualified and authorised to carry out research, development, test or evaluation of Flight Test activities.

Flight Training Device (FTD) *

A Synthetic Training Device (STD) that simulates the aircraft in ground and flight operations to the extent of the systems installed in the device and comprises a full size replica of the instruments, equipment, panels and controls in an open flight deck area, or an enclosed flight deck of the aircraft, but does not, in every respect, simulate the aircraft in ground and flight operations. An FTD includes the necessary software and equipment, and the way that the equipment is interconnected.

Superseded

Flying Display *

A planned display of sequence(s) by one or more aircraft for an assembled group of people that may include demonstrations of handling and operational capabilities within the approved envelope for the type.

Flying Instructor *

A pilot who is qualified and authorised to deliver pilot type qualification training in the airborne or simulated airborne environment.

Flying Management System (FMS) *

A system of processes and procedures within a flying organisation centred on Aircraft types which establishes the management practices, operational rules, and operator training and qualification requirements that support safe Flight Operations.

Flying Supervision *

The function of oversight and management of Crew in aviation operations, considering both safety and Mission, to ensure the safety of Defence aviation through adherence to Flying Management System controls. Flying Supervision is more than Flight Authorisation and monitoring of any single Flight. Supervision is a holistic task that requires:

a. overseeing training, qualification and development of Crew

b. the assignment of a suitable Crew to a task or Mission

c. supervising the Mission planning and Flight Planning, Mission execution and post-Mission reporting and recording

d. Flight Authorisation, where the Flying Supervisor is a qualified and authorised Flight Authorisation Officer.

Flypast *

A subset of an Air Display whereby a Flight of one or more Aircraft is tasked to pass over a specific location on a constant track and at a constant height at a specified time.

Foreign Military Aircraft *

A military aircraft of any foreign nation, certified for flight under that nation's Military Aviation Authority.

Superseded

Foreign Object Debris (FOD) *

A substance, debris or article alien to a vehicle or system that has potential to cause damage to aircraft. Examples of FOD are aircraft parts, rocks, broken pavement, ramp equipment, and vehicle parts.

Foreign Register *

A civil aircraft register or military aircraft register maintained by any country other than Australia.

General (Standard) Cargo

Cargo without special, hazardous or dangerous properties and therefore does not require extra precautions or special handling for air transport.

General Public (GP) * (UAS Context)

All persons not classed as Mission Essential Personnel (MEP), including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

Ground Support Equipment (GSE) *

The ancillary maintenance equipment necessary to maintain an aircraft during servicing.

Guidance Material (GM) *

This is typically developed to provide additional explanation to assist the application of the requirement and/or explain the Acceptable Means of Compliance (AMC).

Hazard *

A source of potential harm or a situation with a potential to cause loss.

Hazard Log *

A data base of identified hazards. It is a formal record of all data and tasks associated with identifying and resolving hazards.

Hazard Tracking Authority (HTA) *

An appointment or appointments – made by the appropriate Force Element Group (FEG) commanders or Navy and Army equivalents - responsible for tracking actions and recommendations from FEG aviation safety reports to completion.

Superseded

Height Above Obstacles Within (HAOW) *

The vertical distance between an aircraft and the highest obstacle on the terrain or water surface within a specified lateral radius from the aircraft's position. For example, '500ft HAOW 600m' means 500 feet of vertical separation between the aircraft and the highest obstacle within 600 metres of that aircraft.

Helicopter

A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.

Helicopter Landing Site (HLS) *

A defined area that may be used by helicopters for the purposes of landing or taking off, including infrequent, opportunity and short term basis for all types of operations. It may or may not be located on an Aerodrome. It may also be referred to as a helipad.

Helipad *

See Helicopter Landing Site.

Heliport *

An Aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors

Principles which apply to design, certification, production, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

Human Performance

Human capabilities and limitations which have an impact on the safety and efficiency of operations.

Hypoxia *

A lack of oxygen to the tissues sufficient to cause impairment of function.

Implement

To introduce requirements into regulations (DASR) by either adoption or compliance.

Superseded

Implementing Regulation

Regulation that amplifies the operation of Basic Regulation, within the defined constraints as provided within the Basic Regulation.

Includes (Rules Of Interpretation) *

'Includes' means: 'includes but is not limited to'.

Independent *

In the context of, or similar to, 'independent board' or 'independent inspection' and within these Regulations means independent of the chain of command which is being assessed or inspected.

Inshore *

Flight over water below LSALT within 20 nm of land, including reefs and rocks, or fixed obstacles, which include manufactured obstacles such as oil rigs that are continually above the high water mark.

Inspection *

The process of determining compliance with engineering standards and applicable maintenance documents.

Instructions For Continuing Airworthiness (ICA)

Instructions for Continuing Airworthiness (ICA) detail the methods, inspections, processes, and procedures necessary to keep aircraft and/or products airworthy.

Instrument Rating *

An award that indicates a pilot has attained a high level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC.

Instrument Rating Examiner (IRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Tests.

Key Staff *

Appointments within a DASA approved organisation that contribute to the safe operation of an aviation system.

Superseded

Life Limited Parts

Parts that, as a condition of their type-certificate, may not exceed a specified operating time, calendar time, number of operating cycles, or any other approved service life consumption units.

Limitations *

Lack of capacity; inability to achieve required outputs; restrictive weakness; physical or environmental constraint; an action imposed by an authority, eg an AwB or Defence AA constraint, which must be undertaken, ie you MUST DO something.

Limited Certification Authorisation

This is issued by the AMO, in accordance with a procedure approved by the NMAA, for flight crew, flight engineer or crew chief to carry out specific tasks (usually away from their home base or station). The authorisation permits the holder to issue certificates of release to service following specific tasks within the limits of the tasks specifically endorsed on the authorisation.

Line Maintenance

Carried out before flight to ensure that the aircraft is fit for the intended flight.

Long Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for more than a year, to support ongoing Defence activity.

Lost Link * (UAS Context)

The loss of command and control link contact with a remotely-piloted aircraft during its operation.

Low Flying *

As defined in Flight Information Handbook Australia (FIHA) and consistent with the relevant OpSpec.

Low Flying Area (LFA) *

A surveyed area that is approved for use and unlimited aircraft manoeuvring within the LFA boundaries to an authorised height.

Low Flying Route (LFR) *

A surveyed route that is approved for use and assures obstacle and terrain clearance will exist within the LFR boundaries to an authorised height.

Superseded

Lowest Safe Altitude (LSALT)

The lowest altitude which will provide safe terrain clearance at a given place.

Maintenance

Any one or combination of overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspection.

Maintenance Check Flight *

Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness (ICA). However, ICA may use different terminology. Note, there may be other check flights conducted in service that are not required by ICA; these flights are not a regulatory requirement. Maintenance check flight is not to be confused with flight test which is covered under DASR 21. (Refer to glossary entry for `Unit Maintenance Test Pilot'.)

Maintenance Manual

That part of the Military Air System document set which identifies the particular maintenance procedures and periodicity necessary to maintain the airworthiness of the Military Air System.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the Type Design with approval of DASA. The MMEL identifies items which individually may be unserviceable at the commencement of flight. The MMEL may be associated with special operating conditions, limitations or procedures.

May * (Rules Of Interpretation)

'May' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described.

Means Of Compliance

The techniques that will be used to demonstrate the compliance of the type design against each certification requirement identified in the Certification Basis. Examples include test, analysis and inspection.

Mechanic *

Mechanics carry out maintenance tasks to standards specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.

Superseded

Meteorology (MET) *

A service that provides area and terminal weather information services that safely support aviation activities, such as flight planning and enroute diversion decisions based upon changing weather conditions.

Meteorological Services

A service that provides weather information services to support the safety, regularity and efficiency of aviation activities.

Military Air Operator (MAO) *

The regulated organisation approved by the Defence Aviation Authority to perform military air operations as defined in the issued Military Air Operator Certificate (MAOC) and in accordance with DASR. In Defence, a MAO is usually a Force Element Group (FEG) or equivalent.

Military Air Operator Certificate (MAOC) *

Certificate (DASR Form 138) issued by the Defence AA to authorise the Military Air Operator (MAO), usually a Force Element Group (FEG) or equivalent, to perform military air operations as defined in the accompanying Operations Specification (OpSpec) and in accordance with DASR.

Military Aircraft *

An Aircraft, (including Uncrewed Aircraft System (UAS)), designed and/or operated for military use and/or registered or intended to be registered on the military register of a Military Airworthiness Authority (MAA).

Military Aircraft Maintenance Licence (MAML)

A categorised licence which, dependent upon completion of all relevant approved training and examinations, and the requisite levels of practical experience, permits an authorised individual to issue certificates of release to service (CRS) or act as support staff for scheduled and / or unscheduled maintenance performed on an aircraft or aircraft systems as defined by DASR 66.

Military Airworthiness Authority (MAA) *

See Military Aviation Authority

Military Aviation Authority*

A person or organisation responsible for the safety oversight of military aviation. An MAA acts independently from the operational, acquisition and sustainment chains of command and is assigned responsibility through a formal instrument such as legislation or an order, directive or decree.

Superseded

Military Certification Review Item (MCRI) *

A document recording Deviations, Special Conditions, new Means of Compliance or any other certification issue which requires clarification and interpretation, or represents a major technical or administrative issue.

Military Permit To Fly (MPTF) *

Permit issued by the Authority or organisations granted such privilege by the Authority when an aircraft does not meet, or has not been shown to meet, applicable airworthiness requirements but is capable of safe flight under defined conditions and for specified purposes. A Military Permit to Fly (MPTF) is also issued for Flight Test activities.

Military Restricted Type Certificate (MRTC) *

Certificate issued by the Authority for a product that does not comply with the applicable Type Certification Basis with restrictions imposed in regard to the intended use of the product.

Military Supplemental Type Certificate (MSTC) *

Certificate issued by the Authority that certifies a MAJOR change to a product's type design.

Military Type Certificate (MTC) *

Certificate issued by DASA stating that a product complies with the applicable airworthiness requirements.

Military Type Certificate (MTC) Holder

The organisation responsible for the relevant Type Design accepting the rights and obligations for the product.

Minimum Equipment List (MEL)

A document that allows for the operation of a specific aircraft under specific conditions with particular item(s) of equipment inoperative at the time of dispatch for the intended flight. Despite the inoperative equipment, the aircraft still complies the Master Minimum Equipment List. (CASA CAAP 37-1(5) - Minimum Equipment Lists).

Minimum Sector Altitude (MSA)

The lowest altitude which may be used which will provide a minimum clearance of 1,000FT above all objects located in an area contained within a circle or a sector of a circle of 25NM or 10NM radius centred on a significant point, the ARP or the HRP.

Superseded

Minimum Separation Distance* (MSD)

The authorised minimum separation, in all directions, between any part of an Aircraft in Flight and the ground, water or Obstacle. MSD applies when flying at less than 2,000 feet above the surface, and does not apply during take-off or landing or to the separation between Aircraft in the same formation.

Minor Amendment

Those changes to the organisation's Exposition(s) which do not affect the DASR related approvals.

Mission *

The assignment of one or more Aircraft to complete a specific task, which may involve multiple Flights.

Minor Maintenance

Includes repetitive tasks and simple defect/fault rectification.

Mission Crew *

Crew who may or may not be qualified on aircraft type, but their qualifications are essential for the successful outcome of a specific aviation mission. Mission crew is a subset of crew.

Mission Essential *

Personnel, equipment or cargo required to successfully conduct a specific aviation mission.

Mission Essential Passenger *

A passenger whose carriage aboard an aircraft is directly associated with the specific mission being conducted. A mission essential passenger may include a boarding party, medical patient, paratroops, troops, deploying personnel or survivors from a Search and Rescue task.

Mission Essential Personnel (MEP) * (UAS Context)

All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is a broader class than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

Superseded

Mission Instructor *

A non-pilot crew member who is qualified and authorised to deliver instruction in the airborne environment or simulated airborne environment.

Model *

An aircraft or system model is a derivative of an aircraft or system type that follows a unique lineage. For example, an A-47 Poseidon is an aircraft type, whilst P-8A is the aircraft model.

Modification

A modification is a change of design to the authorised configuration of the approved type design of product, part or appliance.

Typical examples are component changes, equipment additions, or software changes and often involve a revision to the drawings and support documentation.

Multi-Crew *

The crewing of an aircraft by more than one crew member.

Must (Rules Of Interpretation) *

'Must' is used in the imperative sense. Use of other commonly used imperatives, such as 'shall', 'is to', or 'will' should not occur.

National Airworthiness Authority (NAA) *

See Civil Aviation Authority

National Military Airworthiness Authority (NMAA) *

See Military Aviation Authority (MAA).

Negative Training *

Techniques learned or practiced in the Flight Simulation Training Device (FSTD) which do not translate to correct actions during a safety-critical activity in the airborne environment as a result of incorrect training, fidelity or fit out of the FSTD.

Night Vision Device (NVD)

Any electro-optical device that is used to detect visible and infrared energy and provide a visible image.

Superseded

Night Vision Goggles (NVG)

An electro-optical image intensifying device that detects visible and near-infrared energy, intensifies the energy, and provides a visible image for night viewing.

NOTES:

1. Night vision goggles can be either hand-held or helmet-mounted.

2. Plural form (Night Vision Goggles) refers to binocular equipment and the singular form (Night Vision Goggle) refers to monocular equipment.

Night Vision Imaging System (NVIS)*

A system in which all of the elements required to operate an Aircraft successfully and safely using NVDs are integrated, including NVDs, NVIS compatible lighting, Aircraft components and equipment, training and currency, operating procedures and Continuing Airworthiness.

Non Compliance *

The failure of a plan or procedure to comply with requirements.

Non Conformance *

The failure of a product, process or system to meet its regulatory, specification, drawing, or quality requirements.

Non-Certified Aerodrome *

An aerodrome in respect of which an aerodrome certificate has not been issued.

Non-Defence Registered Aircraft *

An aircraft operated by or on behalf of Defence that is not recorded on the Defence Register.

Non-Standard Cargo*

Non-Standard Cargo is cargo that requires special handling, additional precautions or specific procedures developed for either its preparation, composition, configuration, loading, placement, restraint or unloading. Non-standard cargo includes Dangerous Goods, security- protected consignments, service weapons, safe hand, human remains, unaccompanied personal effects, live animals, mail, perishables, and unserviceable or crashed Aircraft. Non-Standard Cargo also includes the following, where special handling, additional precautions or specific procedures are required:

(a) cargo that is not contained in a unit load device or pallet certified for the aircraft cargo loading system

(b) cargo requiring attachment directly to the aircraft floor.

Superseded

Non-Technical Skills (NTS) *

Those human performance skills that promote reliable and effective task performance in complex work systems. NTS encompass attributes such as the ability to recognise and manage human performance limitations, make sound decisions, communicate effectively, lead and work as a team and maintain situation awareness.

Note: (Independent Board Of Review) *

A review finding which identifies a significant aviation safety issue that is being addressed through management action.

Observation (Independent Board Of Review) *

A review finding which is worthy of comment, but does not require additional management action.

Obstacle *

Is all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Occurrence Reporting *

The reporting of any failure, malfunction, defect, act, omission or other occurrence which has resulted in or may result in an unsafe condition. The objective of occurrence reporting is to use the reported information to contribute to accident prevention and the improvement of aviation safety. Further detailed information regarding occurrence reporting including reportable incidents, timeframes and occurrence reporting types is contained in AMC GR.40 - Occurrence Reporting.

Offshore *

Flight over water other than ‘inshore’.

Operation (of the Aircraft) *

The process and action of operating aircraft (following the initial and continual acceptance of the design, construction and maintenance processes, acts and actions) by the operational chain of command in relation to the Flight of such Aircraft in the operational environment.

Operational Effectiveness *

The ability of a system to perform its intended function over its intended operational spectrum, in the expected operational environment, and in the face of expected threats when operated by typical operational Defence personnel.

Superseded

Operational Servicings (B/F, T/A, A/F) *

Operational Servicings are any maintenance conducted before or after flight as defined in the Aircraft Maintenance Program (AMP). The AMP may include pre-flight inspection tasks outlined in DASR AMC M.A.301(a)(1).

Operational Suitability *

The capacity of the system, when operated and maintained by typical operational Defence personnel in expected numbers, at the expected level of competency, to be reliable, maintainable, available, logistically supportable, compatible, interoperable, safe and is ergonomically satisfactory.

Operations Specification (OpSpec) *

An integral component of the Military Air Operator Certificate (MAOC), Air Cargo Delivery Service Provider Certificate (ACDSPC) and Air Battle Management Operator Certificate (ABMOC), but prepared on a separate form (DASR Form 139) and details key positions of the MAO, ACDSP and ABMO, aircraft types or operations authorised, and operating provisions. Roles and tasks, specific approvals and any limitations/conditions (where necessary) for each approved aircraft type or operation are detailed in separate annexes.

Opposition Manoeuvre *

A manoeuvre where flight vectors of aircraft are opposing each other in close proximity.

Orders, Instructions And Publications (OIP) *

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system. OIP may include: aircrew manuals specific to type; general aircrew publications; Defence Instructions; Standing Instructions; command and unit issued Flying Orders, Special Flying Instructions and standard operating procedures.

Original Equipment Manufacturer (OEM) *

A manufacturer listed as the approved source of manufacture for components in the Type Certificate data sheet. The OEM owns and controls the source drawings, i.e. the design of the component.

Passenger *

Any person who is on board an aircraft other than a member of the authorised crew.

Perform Maintenance / Task Sign-Off *

Task sign-off attests that a competent and authorised person has performed the maintenance task prior to certification.

Superseded

Performance Based Navigation (PBN)

Area navigation based on performance requirements for aircraft operating along an Air Traffic Services (ATS) route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (ie RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Periodic Health Examination (PHE) *

A more comprehensive assessment that periodically replaces the Specialist Employment Stream Annual Health Assessment (SESAHA) in accordance with Defence policy. Also considered an aviation medical certificate assessment when conducted by an AVMO.

Pilot *

A person qualified and authorised to manipulate the flight controls of an aircraft during flight.

Populous Area * (UAS Operations Context)

An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.

Portable Electronic Equipment (PEE) *

Comprises all electrically powered equipment that is carried on Defence aircraft by crew and passengers, not forming part of the certified aircraft type, Role Equipment, ALSE or cargo.

Pre-Flight Inspection *

The pre-flight inspection is a continuing airworthiness task intended to encompass all of the actions necessary to ensure that the aircraft is fit to make the intended flight. The pre-flight inspection is not maintenance and can be carried out by appropriately trained maintenance, aircrew or other personnel in accordance with published guidance from the operating organisation.

Preventive Maintenance *

Those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining materiel and restoring it to a specified condition.

Primary Runway *

The runway used most frequently or that provides the best overall aerodrome capability.

Superseded

Privilege *

The means by which the holder of a qualification, rating, endorsement or approval is authorised to conduct an activity.

Production *

The manufacture and assembly of new parts, appliances, aircraft, engines or propellers to approved design data.

Products, Parts And Appliances

Product = the design of an aircraft, engine or propeller (each can be granted with a Type-certificate).

Parts and appliances = lower level components for which an AUSMTSO (or foreign TSO) may exist, and fitted to a product.

Qualification * (Flight Simulation Training Device Context)

The verification and validation of the functionality and fidelity of a Flight Simulation Training Device (FSTD) against an accepted standard. The end result of a process which formally examines and documents compliance of a FSTD, against predefined standards, to the satisfaction of the relevant qualification organisation approved by the Authority.

Qualified Entity *

A body (Commonwealth or commercial) which may be allocated a specific certification task by, and under the control and responsibility of, the Authority.

Quality Management System (QMS) *

All activities of the overall management function that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality controls, quality assurance and quality improvement.

RAAF Institute Of Aviation Medicine (IAM) *

The ADF Centre of Excellence for aviation medicine related issues.

Ramp Inspection *

Related to the operation of Civil Registered Aircraft chartered for temporary use by Defence. The Ramp Inspection is an acknowledged means of providing confidence in a charter aircraft's fitness for purpose and assessing the suitability of a charter supplier.

Superseded

Recency *

A prescribed period of on-going practical application of a function, set within a prescribed currency period that ensures a qualification or skill remains proficient throughout the currency period.

Reduced Vertical Separation Minima (RVSM)

Reduced vertical separation minimum of 300 m (1000 ft) between FL 290 and FL 410 inclusive.

Registration

Registration is the formal recording by the NMAA of an individual aircraft on the military aircraft register and the assignment of a tail number.

Regression Testing*

A test process re-running functional and non-functional tests to ensure that previously developed and tested software still performs as expected after a change. Regression Testing also includes testing software not amended during the latest upgrade to ensure the software change has not affected interface control data.

Remote Pilot (RP) * (UAS Context)

The person in direct command/ control of the UAS, including manipulating flight controls or programming waypoints during flight.

Remote Pilot Station (RPS) * (UAS Context)

A station at which the RP manages the flight of a UA.

Remotely Piloted Aircraft (RPA) * (UAS Context)

An uncrewed aircraft that is operated by a remote pilot or air vehicle operator.

Remotely Piloted Aircraft (RPA) Observer * (UAS Context)

A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely Piloted Aircraft System (RPAS) * (UAS Context)

A subset of Uncrewed Aircraft Systems (UAS), a RPAS is a system consisting of the remotely piloted aircraft (RPA), together with any Remote Pilot Station (RPS), communications/data links, maintenance, launch and recovery systems. This includes the network and operating personnel required to control the RPAS. A RPAS may also be referred to as a UAS.

Superseded

Repair

A 'repair' means the elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.

Required Navigation Performance (RNP)

A statement of the navigation performance necessary for operation within a defined airspace.

Note: Navigation performance and requirements are defined for a particular RNP type or application.

Rest Period *

A continuous uninterrupted and defined period of time, following duty or prior to duty, during which a person is free of all duties, standby and reserve.

Restricted Instrument Rating *

An award that indicates a pilot has attained a level of specialist instrument flying skills required for the safe and effective operation of the specified aircraft type in IMC, but has not met the full criteria to be awarded an Instrument Rating.

Restricted Type-Certificate Data Sheet (RTCDS)

Companion document to Military Restricted Type-Certificate (MRTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the RTCDS.

Restrictions *

Prohibitions on activities that an authority might impose (i.e. you MUST NOT DO something). Such imposed conditions are designed to treat limitations.

Risk Management (RM) *

The application of Risk Management in the context of Defence aviation operations. RM offers a systematic, logical approach to identifying and treating risks to Defence aviation resources and missions, while supporting initiative, flexibility and adaptability

Risk Mitigation *

The strategy and methods employed to eliminate or minimise risks presented by a hazard.

Superseded

Role Equipment *

Any equipment, apart from ALSE, fitted to an aircraft on a non-permanent basis, or carried on board, for operation by crew or passengers in flight to support a Defence role or mission.

Runway Incursion *

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Safety Critical

Applied to a condition, event, operation, process, or item whose proper recognition, control, performance, or tolerance is essential for safe system operation or use; eg safety critical function, safety critical path, safety critical component.

Safety Critical Area *

A working environment assessed as having a heightened risk to the physical safety of personnel, or where key operational decisions are made. For example an aircraft flight deck or an ATC Control Tower.

Safety Management System (SMS) *

See Aviation Safety Management System (ASMS).

Segregated Airspace (SA) * (UAS Context)

Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregation *

Airspace Control Measures (ACM) that ensure that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.

Senior Air Traffic Control Officer (SATCO) *

An internationally recognised civil/military term describing the person commanding and/or managing the ATC unit responsible for the ATS delivery at a specific aerodrome and the airspace relevant to the aerodrome. At Defence aerodromes, the SATCO may also hold an administrative command title appropriate to the ATS unit concerned.

Senior Instrument Rating Examiner (SIRE) *

A pilot who is qualified and authorised to conduct Instrument Rating Examiner assessments.

Superseded

Sensor Operator *

A person charged to operate airborne sensor systems on a crewed aircraft or UAS to collect, analyse and distribute airborne sensor data.

Separation Assurance *

The assurance provided by the Air Traffic Control (ATC) service provider that if the pilot complies with ATC control instructions an aircraft will maintain a prescribed minimum separation standard from another aircraft or object.

Serious Injury Or Illness *

An injury or illness requiring the person to have:

a. immediate treatment as an in-patient in a hospital, or

b. immediate treatment for:

1. the amputation of any part of their body
2. a serious head injury
3. a serious eye injury
4. a serious burn
5. the separation of their skin from underlying tissue (such as degloving or scalping)
6. a spinal injury
7. the loss of a bodily function
8. a serious laceration.

c. medical treatment within 48 hours of exposure to a substance. (WHS Act 2011)

Service Life-Limit For Components *

Specified life-limit after which the components should undergo maintenance to restore their serviceability.

Service Provision Conditions (SPC)*

An integral component of the Air Navigation Service Provider Certificate (ANSPC) that details:

(a) key positions

(b) the types of service the ANSP Air Navigation Service Provider (ANSP) is certified to provide

(c) operating provisions.

Superseded

The complexity of the service(s) may be further detailed in separate annexes. For example, ATM services may have a separate annex for each Defence site where services are provided.

Shall (Rules Of Interpretation)

'Shall' is used in the mandatory requirement, as is 'must'.

Shipborne Heliport *

A defined area on a ship (including any installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of helicopters.

Short Term Lease *

The dry or wet leasing, renting or hiring of an aircraft by Defence, usually for less than one year, to support specialised Defence activity.

Should * (Rules Of Interpretation)

'Should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.

Side Number *

A unique RAN number that differs from the 'tail number' and is applicable to RAN aircraft only. The side number is normally the identifier used in call signs and for flight planning purposes. The side number is not normally included in the Defence Register.

Simulator Instructor *

A crew member who is qualified and authorised to deliver instruction in a simulated airborne environment.

Single Pilot *

The crewing of an aircraft by one pilot, even though other pilot positions may be available and occupied by non-pilot crew members.

Single Service Aviation Medical Advisor (SSAMA) *

An Aviation Medical Officer (AVMO) who represents a single Service, is recognised by the Surgeon General–ADF as being qualified to provide authoritative aviation medical advice and is responsible for the implementation of aviation medicine policies.

Superseded

Solo Flight *

Flight in which the pilot is the sole occupant of the aircraft.

Sparsely Populated Area *

An area considered outside the areas of cities, towns or settlements characterised by rangeland grazing, desert, uncultivated landscapes, wilderness, infrequent homesteads, large land holdings, extensive uncleared land, salt lakes, adjacent coastal waters and open ocean or navigable tracts of water with infrequent water traffic.

Special Conditions

Are introduced when the design features of a particular product or the experience in operation render any of the airworthiness code provisions inadequate or inappropriate to ensure conformity with essential requirements.

Specialised Services *

Services that include, but are not limited to, structural repair, composite repair, surface finishing, metal machining, metal spraying, shot peening, welding, electroplating and anodising, non-destructive testing, borescope inspections, in-flight entertainment systems.

Specialised Services Staff *

Staff who carry out specialised maintenance tasks to the standard specified in the maintenance data or defined standards acceptable to the NMAA.

Specialist Employment Stream Health Assessment (SESHA) *

A generic term that may be used to describe an aviation medical certificate assessment.

Sponsor *

The entity/organisation responsible for defining the required aviation outcome, receives or uses the outcome and is responsible for funding the related activities, processes, project or products required to safely achieve the outcome.

Standard *

A description of a material, product, doctrine or process meant for repeated applications by many users. A Technical Standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices.

Superseded

Standard Part

A Standard part is a part designated as such by the design approval holder responsible for the product, part or appliance, in which it is intended to be used and manufactured in complete compliance with an established specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. Examples of standard parts are aircraft general spares as defined by the design approval holder, such as nuts, bolts, washers, split pins, etc. All design, manufacturing, inspection data and marking requirements necessary to demonstrate conformity of the part will be in the public domain and published or established as part of recognised specifications.

Standard Scenario * (UAS Context)

A description of a UAS operation in the Specific category, for which risk controls have been determined based on a risk assessment, and introduced by the Authority.

State Aircraft * (Australian Context)

Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country: Civil Aviation Act 1988, section 3; Air Navigation Act 1920, section 3.

Statement Of Operating Intent And Usage (SOIU) *

A document describing the approved roles, operating envelope, usage spectrum and operating environment for a particular aircraft type. The SOIU differentiates between tasks for which the type has been certified and tasks that are planned but will require certification action before flight can be authorised.

Stores Suspension Equipment *

All aircraft devices such as racks, adaptors, missile launchers, internal guns, countermeasure dispensers and pylons, used for carriage, employment and jettison of aircraft stores. Aircraft guns and countermeasure dispensers for flares and chaff must be considered to be stores suspension equipment.

Sub-Atmospheric DCI *

The term used to describe cases of decompression illness (DCI) induced by exposure to pressures less than sea level equivalent, such as encountered during flight. DCI is a potentially lethal condition and should be treated as a medical emergency. The term is referred to simply as DCI in DASR.

Supervisor *

Personnel who ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved

Superseded

maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action.

Supplemental Oxygen *

Refers to acceptable aviators' breathing oxygen that is available for use whenever required.

Support Staff

Those personnel holding a DASR 66 Military Aircraft Maintenance Licence in Category B1 and/or B2 with the appropriate privileges, certification authorisations and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.

Support Staff support the Category C licence holder and are required to ensure that all relevant maintenance tasks have been carried out to the required standard.

Surveyed Route Or Area *

A route or area is considered surveyed when it is flown in VMC by day and all hazards and obstacle data that may compromise Aviation Safety have has been identified and recorded.

Survivable Crash Or Accident *

An accident where the cockpit and/or structure remained relatively intact and the forces experienced by the occupants did not exceed, or should not have exceeded, the survivable limits of human G-tolerance.

Symmetry Check

A symmetry check is equivalent to a mensuration check or alignment check which is typically covered in the applicable Aircraft Maintenance Programme (AMP).

Synthetic Training Device (STD) *

Means:

a. a flight simulator

b. a flight training device

c. a basic instrument flight trainer

d. an air traffic control simulator; or

e. an air traffic control part-task trainer.

Superseded

System Safety *

The application of engineering management principles, criteria and techniques to optimise the safety of a 'system', within the constraints of operational effectiveness, time and cost throughout all phases of the life cycle.

System Safety Engineering *

An engineering discipline requiring specialised professional knowledge and skills in applying scientific and engineering principles, criteria, and techniques to identify and eliminate hazards, in order to reduce the associated risk.

System Tolerance *

The inherent ability of the Aviation System to compensate for inadequate/absent defences.

Tail Number *

The tail number is the unique numerical identifier, which is appended to the Application Identifier (AI), and identifies each individual aircraft. For example, A41–nnn for C–17 Globemaster, N48–nnn for MH–60R Seahawk.

Task Authorisation *

The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons Navy 'A' card, AATTR or RAAFRTE or equivalent document.

Task 'Sign-Off' *

This is a statement, signed by an appropriately authorised and competent person or an appropriately authorised and competent MAML holder, that, the maintenance task has been completed, to the standard required, in accordance with the AMD.

Temporarily Medically Unfit For Flying (TMUFF) *

Where an aircrew member, remote pilot or aircraft controller is temporarily medically unfit to perform specialist flying related duties, but may perform non-flying related duties.

Test And Evaluation (T&E) *

T&E is a process to obtain information to support the objective assessment of a Capability System with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle. The individual terms are defined as: a test is an activity in which a scientific method is used to obtain quantitative or qualitative data relating to the

Superseded

safety, performance, functionality, contractual compliance, and supportability of a system; and evaluation is analysis of test results to determine (verify) or prove (validate) something.

The Authority *

The Authority collectively refers to the Defence Aviation Authority (Defence AA), and specific appointments within the Defence Aviation Safety Authority (DASA) who have been given a delegation from the Defence AA to exercise authority on their behalf.

Time Limited System*

An aircraft system which when operated / activated, has a useful or safe operating time that is less than the maximum endurance of the aircraft. An example is a cargo bay fire suppression system.

Time Zone *

A time zone is one of the areas into which the world is divided according to what time it is there.

Two Pilot *

The crewing of an aircraft by two pilots in aircraft fitted with dual flying controls

Training Product

A qualification, skill, knowledge, competency, course or module that influences a basic training course (IAW DASR 66 syllabus), or aircraft type/task training course (IAW DASR 66).

Type *

A specific design (make and model) of a product certified under a single Type Certificate.

Type Certificate Data Sheet (TCDS) *

Companion document to a Military Type Certificate (MTC) and describes the basis of certification, lists any associated Military Certification Review Items (MCRIs), details technical characteristics and operating limitations, and includes details of each aircraft added to the TCDS.

Type Certification *

The process through which compliance of the design with the Type Certification Basis is established within the bounds of the intended operating roles and environment contained in the Statement of Operating Intent and Usage (SOIU).

Superseded

Type Certification Basis

An agreed set of airworthiness requirements (including code, special condition, etc) that a product must be compliant with in order to obtain a Military Type Certificate.

Type Design

The set of approved design information necessary to define the product type, as detailed in DASR 21.A.31 - Type design.

Type Rated *

Crew that are qualified to operate a particular aircraft type, or ground crew that are qualified to maintain a particular aircraft type.

Type Specific *

A qualification or endorsement is type specific if the qualification or endorsement applies only to an aircraft type that is specified on the qualification or endorsement.

UAS Flight Termination System * (UAS Context)

A control system that can immediately terminate flight of an uncrewed aircraft (UA) safely.

UAS Operating Permit (UASOP) * (UAS Context)

Approval to operate a UAS that is not Certified. Issued by the Authority, based on a risk assessment and the implementation of related risk controls.

UAS Operator * (UAS Context)

The organisation, eg MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.

Unapproved Aeronautical Product *

Any part, component or material that has not been manufactured and certified as conforming to the technical data against which type certification is provided.

Underwater Locating Device (ULD) *

A device to allow the flight recorder to be located underwater post-crash.

Superseded

Uncrewed Aircraft (UA) * (UAS Context)

An air vehicle that flies under RP control or autonomous programming without a human on board in control.

Uncrewed Aircraft System (UAS) * (UAS Context)

The entire system consisting of the uncrewed aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/ control the UA.

Unit Maintenance Test Pilot (UMTP) *

A pilot authorised to fly an aircraft after aircraft maintenance has been conducted as required by Instructions for Continuing Airworthiness (ICA) to check aircraft serviceability. (Refer to glossary entry for `Maintenance Check Flight'.)

Unpopulated Area *

A geographic area which contains no people, including no Defence personnel and no civilian persons.

Validate *

Confirmation, through the provision of objective evidence, that the requirements for a specific intended use (ie outcome) or application have been fulfilled.

Variant *

A variant of an aircraft or system is derived from a ‘model’. For example; the C–130J is a model of the A-97 Hercules type, and the C–130J–30 is a variant of the C–130J model.

Verify *

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.

Warbird, Historic And Replica Aircraft (WHRA) *

A non–Defence registered aircraft that is an ex-armed forces (Warbird) aircraft, a historic aircraft or a replica aircraft.

Weapon

Any device, whether tangible or intangible, designed or intended to be used in warfare to cause:

a. injury to, or death of, persons; or

Superseded

b. damage to, or destruction of, objects.

Weight And Centre Of Gravity Schedule

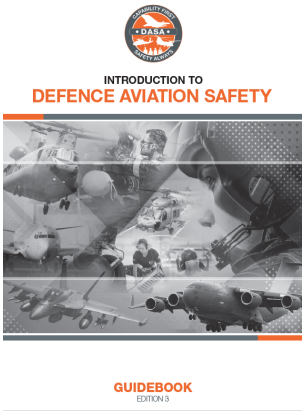
Weight and centre of gravity schedule - This is an EMAR term and is equivalent to a weight and balance statement.

Wet Lease *

A lease where an organisation provides Defence with an aircraft, crew, maintenance and insurance for Defence tasking.

Superseded

Other Manuals and Guides



[Introduction to Defence Aviation Safety](#) (IDAS) Guidebook

The Introduction to Defence Aviation Safety Guidebook is issued by the Defence Aviation Authority to familiarise those working in Defence aviation with the Defence Aviation Safety Framework and Program. The Guidebook describes the imperative for Defence's approach to Aviation Safety as well as the domestic and international context. It identifies the responsibility of Defence aviation commanders and managers to ensure safety in contrast to the independent safety assurance role of the Defence Aviation Safety Authority (DASA). The Guidebook includes a short description of each part of the Defence Aviation Safety Regulation and the corresponding authorisations issued by DASA.

[Defence Aviation Safety Design Requirements Manual](#) (DASDRM)

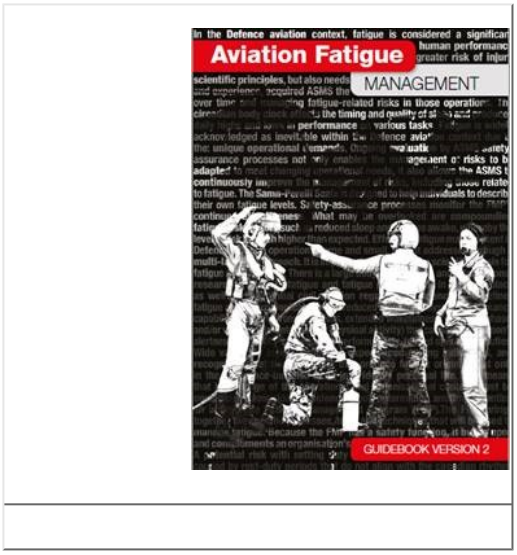
The DASDRM prescribes design requirements for aircraft systems and functions that are necessary to achieve safe flight in Defence's proposed configuration, role and operating environment. It also prescribes additional design requirements that may further improve the level of safety, and that should be implemented where reasonably practicable. In each case, the DASDRM identifies the hazard(s) that the design requirement is intended to treat, to provide a basis for informed risk management where an aircraft design fails to meet the design requirement.

[Aviation Non-Technical Skills](#) (NTS) Guidebook

Available via Intranet Only

This guidebook is designed to introduce the reader to human factors consideration such as human performance, error and violation, safety culture and specific NTS such as situation awareness, decision-making, communication, leading and working in teams and managing stress and fatigue.

Superseded



Defence Aviation Fatigue Management (DAFM) Guidebook

The *Aviation Fatigue Management Guidebook* provides guidance on meeting obligations in relation to fatigue management within the Defence aviation context. More broadly, this guidebook seeks to familiarise Defence aviation personnel with contemporary concepts of fatigue management and to provide practical guidance for implementation in day-to-day operations. While parts of the guidebook focus on considerations specific to select Defence aviation occupations, the themes and concepts remain applicable to all operating contexts.

Defence Aviation Safety Manual

Available via Intranet Only

This manual contains the Defence-approved corporate policy, procedures and guidance to be used by Defence personnel involved in all areas of aviation safety management. The DASM is sponsored by DFSB and endorsed by individual Service command authorities.

Superseded

Portal User Guide

Introduction

To provide feedback on the Policy Portal web interface, or to ask a question about it, please email dasa.dasr@defence.gov.au. For all queries related to DASR change requests, including suggestions and clarifications, please submit a DASR Form 111 located under DASR Forms.

Web Browser Requirements

The recommended web browsers are Microsoft Edge, Mozilla Firefox and Google Chrome. Internet Explorer and Safari should not to be used as they do not properly display paragraph numbers.

Change bars

Change bars on the far right-hand side of the text are used to identify text that has been amended in the most recent DASR release. A change bar to the right of any GM or AMC inircates amended text within the GM or AMC. Change bars are not applied to editorial changes.

Printing

To print, use the print button at top right (see image below). This will print the regulation the user has open and any AMC or GM that has been opened prior to clicking print. The print function works best in Microsoft Edge and Google Chrome.

Tailoring of European Military Airworthiness Requirements

Defence has tailored the European Military Airworthiness Requirements (EMAR) to produce the Initial and Continuing Airworthiness DASR. 'Green' text identifies wording that differs from the source EMAR, except where the difference is editorial in nature. The titles of DASR-unique regulation clauses, or new elements of Acceptable Means of Compliance (AMC) and Guidance Material (GM), are appended with '(AUS)'; e.g. DASR 139.1 - General (AUS).

Navigation

There are two methods to navigate the DASR:

1. Using DASR Structure diagram:

Superseded

- The DASR home screen includes the DASR structure in a diagram format. This can be used to navigate to the desired regulation as each box contains a hyperlink to the respective regulation.

2. Using Table of Contents

- The table of contents on the left hand side of the screen can be used to navigate to regulation groupings, and to drill down to individual regulations.

Viewing Acceptable Means of Compliance and Guidance Material

To view any AMC or GM published against regulation clauses, click the blue AMC or GM buttons such as these: AMC GM.

Expand/Collapse All

The Expand/Collapse all function when selected will expand all AMCs and GMs with the regulation and then collapse if selected again.

Note: Depending on the size of the regulation this may take a moment to occur.

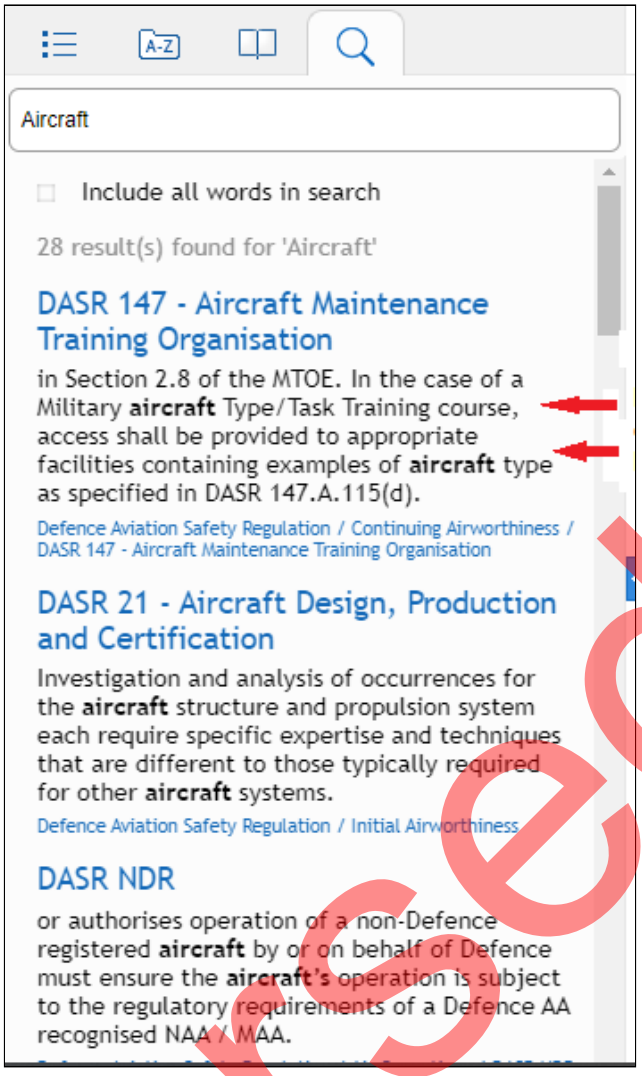
Search function

A search field is located at top right. This can be used to search the entire DASR for single term or a phrase. If multiple words are searched, the search tool will display the multiple words first then each word individually. To carry out explicit an search with multiple words use single or double quotes (‘ or “) at the beginning and end; e.g. ‘Hazardous Propulsion System Effect’ or "Hazardous Propulsion System Effect".

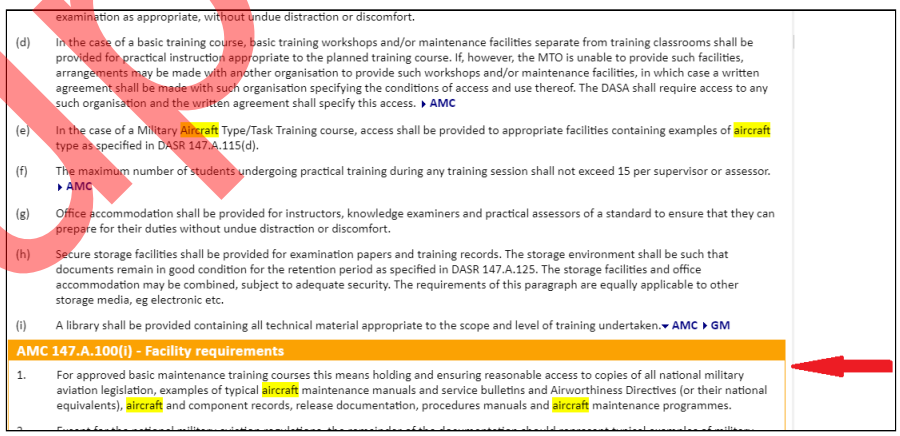
Tips for searching:

After a word or phrase has been searched, the search results will only show the regulation where that word or phrase appears, as shown below.

Superseded

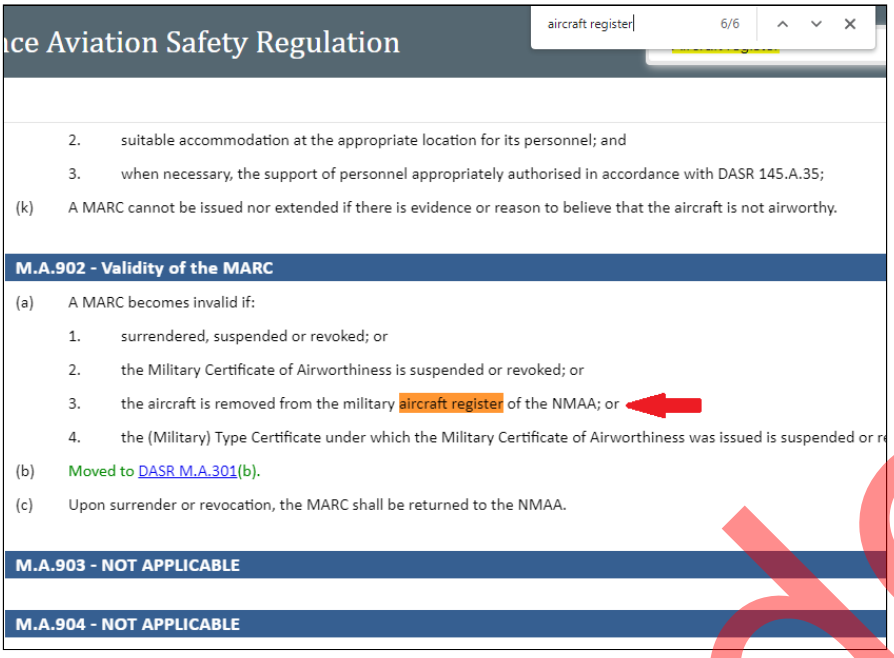


Once you have selected the regulation you wish to view, your search term will be highlighted in yellow. Any AMC or GM containing the search term will automatically expand.



To step through all instances of the search term within the page, use your web browser's search function (usually CTRL + F).

Superseded



Hyperlinks

Some Hyperlinks within the Policy and Guidance Portal are only available on the Defence Protected Network (DPN).

Glossary

The Glossary of Terms is linked from the menu at left.

Offline version

To create an offline version, use the print function located on the top right corner and print to PDF.

Superseded